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THE CENTRAL COUNCIL FOR HEALTH EDUCATION

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Editorial

TO BE OR NOT TO BE

"So the Scientist has a double responsibility. He must apply his science to the study of human nature to prevent its failures, but he cannot wait for the discoveries which might make us act more wisely: he must make it abundantly clear now that the human race cannot stand more than a few thousand major atomic explosions whether they hit their target or miss it."*

This is the simple warning delivered with all the clear modest and humane dignity of one of our greatest scientists, Professor Adrian. We are grateful to him.

To be, or not to be—that is the question. We are no longer faced with the choice of being more or less "total" about war, more or less loving towards our enemies. Our choice is now simple: do we wish the human race to continue, or are we prepared to become extinct like the dinosaurs because like them we could not learn to adapt? The future of man has never before been questioned in this brutal way. Private cruelties, mass slaughter, whole ages of darkness and ideological warfare have been engineered by dull and dogmatic men unable or unwilling to see that there is more than one way to salvation, but never before has it been possible for such men to commit the entire human race to the fire and ashes.

How does this fantastic choice affect us? We are deeply involved as citizens and also professionally, and there is an awe-inspiring urgency about it which makes many of our day-to-day tasks seem trivial. As health workers we must face on the one hand the technical questions of how to prevent the deadly and lasting radiation effects on the tissues and reproductive power of man. On the other hand as health educators we are more concerned with long-term measures of mental hygiene: to prevent the development of personalities so distorted and immature that they are prepared to use nuclear weapons and end the human race. It is a sobering thought that only nine years ago we stepped on the tight-rope at Hiroshima. We were by no means desperate men. We were reasonable men by present standards. But we failed to understand the full significance of what had been done in our name or to imagine how quickly the rope of peace that sinister act provided would wear out. If we are wise enough or

*Professor Adrian's Presidential Address, British Association for the Advancement of Science, 1954.

fearful enough to preserve what Sir Ralph Cochrane calls the Pax Atomica we shall be lucky. But such a respite must be used to develop at the greatest speed possible the long-term projects in human engineering which may ultimately solve the crisis in human relationships threatening to destroy us all. Health workers man a key sector in this struggle to prevent the failures of human personalities. In fact it is the main problem of preventive medicine to-day. They are there at the beginnings of life, they have a privileged position in the early development of family relationships; they are becoming aware that their influence at this vital period in the formation of personality can help to improve the generations to come who will be able to look on the values of this tortured century as we look on the barbarisms of the dark ages. They may, however, feel that there is less excuse for us. But if they come across Professor Adrian's address in the dusty archives they may find the key to our scientific dilemma. He points out that the findings of science are not moral; they can be used for good or evil, for peace or war, according to the attitudes of men; the discovery of a cure for paranoia may easily indicate the method of producing it. But two slight advantages we have over Attila and Genghis Khan. To-day medicine and education have a fundamental and generally accepted morality which in the modest words of Albert Schweitzer is Respect for life, and we are more conscious of what we are doing. There is no branch of medicine where in the past respect for human life has been more cultivated than the Public Health Service. But the Public Health Service to-day is not adequately equipped technically to meet this enlarged scope. Professor Adrian, however, indicates a way to pioneer mental hygiene by the development and use of other social sciences in public health thinking. We have already seen the impact of such contributions as the work of Bowlby and Halliday, and there are indications from many other fields.

The conscious endeavour to improve the emotional health of humanity is an immense task requiring all the imagination and patience of many social disciplines; research, anthropology, psychology, health education, and administration, but it is a task which no other professional grouping is as well equipped to undertake as the Public Health Service. Whatever contributions are made by the social sciences they will still need to be accepted by the public. The interpreters of scientific social medicine will become ever more important and this is the job of health education.

SCIENCE AND HUMAN NATURE*

By Dr. E. D. ADRIAN, O.M., F.R.S.,
President of the British Association

KNOWLEDGE of the material world is constantly growing and its consequences are of such a spectacular nature that everyone is aware of them: few people now can doubt that the scientist's picture of the world must have some validity if it enables him to deliver such remarkable goods. Progress is too rapid for the new discoveries to be saved up as a birthday present and controversies have become too technical to be aired in the market place. Yet there is one very great and worthy task which needs the help of a body like ours which brings scientists and laymen together. The Association must show the layman where the scientific age is leading him. It is by its impact on public opinion that the success of these meetings must be judged.

No meeting of the Association at Oxford could pass without reference to that famous occasion when its impact on public opinion was highest, when it was made quite clear that the pursuit of natural science would mean a painful revision of beliefs as well as a gain of material comfort, when it claimed acceptance for the theory that denied the special creation of mankind.

It was in 1860, the year after the publication of Darwin's book on "The Origin of Species". Bishop Wilberforce was to speak and Huxley was Darwin's champion. The dispute had been on the scientific plane and the evidence could not be ruled out because it was unpalatable: within a few years the battle for Darwin's theory was won and it seemed that the discoveries of science had forced the human race to give up beliefs on which it had relied for centuries.

Naturally the change came gradually, bringing discord into a good many families where the rising generation were zealous converts to the new creed. But now the scars are mostly healed. Advancing understanding of what was really at stake has made it possible for both sides to keep their ideals. The theory of evolution has lost its power to arouse passionate resentment or passionate faith.

* From the address delivered to the British Association, 1st September 1954. Reprinted from *Advancement of Science*, No. 42, September 1954.

I have mentioned that meeting for two reasons: because it emphasised that man himself was part of the natural world and because it emphasised also his right, at all events his determination to go on searching for knowledge, for without his curiosity he would be nothing.

We all know where our curiosity has now landed us; with advances in atomic physics which might be applied to devastate half the world and if they were so applied would certainly make life in the other half extremely precarious. Our grandfathers here were faced with scientific discoveries which were no laughing matter, for to many of them they spelled the end of all worthy human aims, but we face discoveries which might spell the end of all human aims, worthy or not.

We can regret that atomic bombs are possible without regretting the discoveries that have led to them. Advances in natural science cannot avoid advancing the methods of warfare; they do so when they make armies more healthy as well as when they increase the power of their weapons. But although the strategists have to think mainly of immense explosions and great devastation, it would be a mistake to suppose that these are the only dangers. Even if we can survive them we must face the possibility that repeated atomic explosions will lead to a degree of general radioactivity which no one can tolerate or escape.

The level would not rise rapidly and there is a large margin in hand but the physicists can estimate the persistent contamination which must follow an atomic explosion of a given magnitude and the biologists can assign limits to the amount of contamination which could be let loose on the world without serious danger to every part of it. When atomic energy is used to supply power for industry the dangers of contamination are real enough, but due precautions can be taken to avoid them. In a major war they would soon be set aside. Powerful nations who think they could win quickly might accept the risk. A few hundred large bombs would not raise the level of radiation to the point where it would become a general danger, and no doubt a country of small area like ours could be reduced to ashes by a relatively small mass of explosion. Though the ashes would be deadly, the rest of the world might escape them. But a long war between powers well armed with bombs would certainly involve an order of radioactive contamination which would involve us all, victors as well as vanquished.

Arguments that war does not pay will not count much when ideals are threatened. It is true that a war which would probably end in wholesale destruction can appeal only to people who are desperate, but they can be made desperate and that is the end we have to guard against. There are conceivable safeguards, of course, but controls and conventions are not foolproof, and in

future whenever the world is split into two opposing groups with large stores of atomic weapons it must face this added risk of catastrophe.

Yet we have surely no right to feel that our predicament is so much worse than that of earlier generations. Our grandfathers could do nothing to ward off the danger which seemed to face their cherished beliefs, but our fate is in our own hands. We are afraid, and rightly, because we cannot trust ourselves to act peaceably, because we know that unless we are ready to give up some of our old loyalties we may be forced into a fight which may end the human race. Our predicament is the inevitable result of our curiosity and of the physical nature of the world we live in, but if we can make our behaviour worthy of our increased knowledge we can live safely. The scientist, therefore, has a double responsibility. He must apply his science to learn as much as possible about the mental and physical causes which make us behave as we do, he must study human nature to prevent its failures; but he cannot wait for the discoveries which might make us act more wisely: he must take us as we are and make it his task at meetings like this to point out that the human race cannot stand more than a few thousand large atomic explosions whether they hit their target or miss it. If we can make this known universally our Association will not have failed in its purpose.

It may be optimistic to think that our dangers would recede if we had a better understanding of human reactions: in fact if we must continue to make war there is no kind of scientific investigation which might not be used to make it more effective and there can be no guarantee that discoveries in the field of human conduct would be harmless. A drug or a system of education which would make us all do as we are told, a method of producing racial conversion to a new system of belief, a knowledge of new ways of rousing patriotic ardour, all these might be used with consequences almost as grim as the genetical deterioration in a radioactive world. The psychiatrist who discovers a cure for paranoia may find that he has also revealed a convenient way of producing it.

Our novelists have made us aware of these dangers, but it is some comfort to feel that in this case the increased knowledge could be used for defence as well as attack. We can only be protected from radioactivity by living in caves on uncontaminated food and drink, but an increased knowledge of how the mind can be influenced could certainly forestall many of the influences which might be used to undermine our integrity.

It is certainly true that discoveries relating to our own nature may mean a painful readjustment of our beliefs: that, however, is a fair price for increased understanding and in fact our ideas

about our own behaviour have already been assailed in such a way that further revelations are unlikely to shock us. There is a fairly close parallel between the impact of the theory of Natural Selection one hundred years ago and that of Freud's theories on our own generation. The British Association does not come into it, because Freud's evidence was all on the medical side, but his views made the same kind of attack on our pride and met with the same passionate resentment or approval. The theory of unconscious forces moulding our thoughts has certainly diminished our stature as intelligent beings; yet the parallel still holds, for again we have recovered our equanimity. We are reconciled to the unconscious, though we may not have digested all the elaborations of psychoanalytic theory. We are no doubt less sure of ourselves, inclined to spare the rod and to put nothing in its place, but, on the whole, Freud has left us with a better understanding of human conduct and we are not down-hearted at finding it less rational than we used to suppose.

Freud would have liked to build up a system based on the physiology of the brain, but he was soon too deeply committed to the psychological side. Pavlov's conception of human behaviour was based on brain physiology and it was less disturbing because it did not go into such uncomfortable detail. It is now perhaps more disturbing than Freud's, because Pavlov's notion of the conditioned reflex has come to dominate one side of the world, but we must not think the less of it because it has been used to justify a political system foreign to ours. Pavlov and Freud were both scientists of surprising originality. They gave a new impetus to research on human activity, but the fields they explored are still waiting for the next advance to show how much they will yield.

The difficulty is that there are so many fields of inquiry to cover, each with its own limited range of facts and deductions. Freud studied dreams and neuroses and explained them as the product of repressed desires. Pavlov studied learning in animals and explained it in terms of conditioned reflexes, but physiologists ever since Galvani have studied the reactions of nerve fibres and nerve cells, the units of the nervous system, in the hope of explaining what they do in the terms of physics and chemistry. This approach at the lowest level can tell us little about the way in which units are organised, but when we keep to physical and chemical problems we are in the familiar territory of the exact sciences, we know how experiments should be conducted and there are great technical advances at our disposal. It is when we begin to think of organisms rather than molecules that we seem to part company with mechanism.

But we do know that the cells of the brain do not behave as passive agents for conducting and combining the signals that reach them. As long as we are awake many of them are in con-

tinuous rhythmic activity. The system has its own reserves of energy and is unstable, at all events it is so constituted that a slight disturbance of equilibrium will start up a cycle of discharge and recovery repeated many times a second and extended through much of its substance. It is no great surprise to find that we are driven to our daily activity by a cell system of this kind with energy to be dissipated, but we are now learning something about the interplay of the different parts of the system. It is found, for instance, that a relatively small collection of cells at the base of the brain has a profound effect on the general level of activity, so that we are aroused when it is stimulated and fall into coma if it is injured. We can see too how the chief focus of disturbance shifts from one region of the cerebrum to another when we transfer our attention. In fact we are beginning to trace a closer connection between what is going on in the different parts of the brain and what we happen to be doing from moment to moment. For what it is worth we can see a physical reason for our restless lives and our insatiable curiosity.

One may well feel that the most detailed knowledge of brain physiology will never help us much in our efforts to live peaceably, but it would be rash to prophesy. Certainly there are people now who lead more placid, if perhaps less useful lives, because their anxieties have been diminished by leucotomy, an operation on the frontal lobes of the brain. And long before the advent of leucotomy we had become accustomed to adjusting the activity of our nervous system by chemical agents. Tea and coffee, alcohol and tobacco are the stimulants and sedatives of the pre-scientific age and now, to quote the preacher, there is no end to the works of the apothecary, and we seem to be much less afraid of using the confections he gives us to take away our pains.

Only the writers of science fiction would suggest a future in which the problems of civilisation will be dealt with by tampering with the brains of some or all of mankind. It will help us a little to settle our differences if we have the means of ensuring a clear head and an even temper after a long journey and a resetting of the daily rhythm, but clearly we must look beyond physiology for an adequate picture of the human brain in action. Though it should start at the molecular or the cellular level, the evidence for it must include the activities of the finished product. We must find out what human behaviour is like before we try to explain how it is produced.

We do know, of course, an immense deal about human behaviour, from our own experience and from the accumulated wisdom of the past, but it is only in recent times that we have tried to check our knowledge by the methods of natural science. The development of physical science dates from the time when direct observation and experiment were accepted as better guides

than the principles which had seemed self-evident to the philosophers and the schoolmen. They were wise enough but it was found that they could be mistaken. And so now we can look to the many branches of social science to make a dispassionate study of what actually happens in our society without regard to what might be expected to happen if we are to believe all we have been taught.

The picture of human behaviour which the social scientist has to draw is of a system in which the units are men and women rather than cells or molecules. It is true that one man behaves very differently from another—it is part of our political creed that they must be allowed, within limits, to differ as much as they like. But, although we can insist that the units are not all alike, the general principles which determine their behaviour ought to stand out when we deal with millions rather than individuals.

There is, in fact, one branch of social science which can adopt this plan without difficulty. This is the science of economics which considers only the human activities of producing and consuming and studies the way in which these activities are to be balanced.

Theories describing or explaining other kinds of social activity are nothing new, they existed long before the theories of economics; but the economists have had the figures to check their conclusions and until recently the sociologists have had little but their own philosophy and their own reading of history. Even Durkheim, who broke away from the philosophic tradition, could only point the way to a truly objective study of human society. Now the position is quite different. A century and a half ago it had only just been decided that the population of this country was on the increase. Many had thought that might be so but there were no figures to show whether they were right or wrong. Now there are all the modern techniques for fact finding, the questionnaires, the punched cards, the sorting machines and the statistical methods. It is far easier now to deal with large groups and the psychologists have far more knowledge of the irrational factors which can sway the smaller groups as well as the family and the individual. The stage seems to be set for the new development and it might well be the most important scientific development of this century. Why are we still so reluctant to think well of it?

The answer, I suppose, is that we are not yet convinced that the kind of observations that the social scientist can make will be sufficiently objective and sufficiently precise. Those of us who work in laboratories have a far easier task in selecting what we should observe, yet we know how difficult it is for us to select and observe fairly. We have to school ourselves not to reject the exceptional result as worthless when it does not fit a cherished

theory: we have to be continually aware of our own fallibility even though we have all the figures and controls to keep us straight. We are loth to believe that the social scientists are more open-minded than we are and the material they have to deal with seems to need an almost superhuman open-mindedness combined with an almost superhuman power of selection, of seeing the wood as well as the trees in it. We feel that we should be lost in such a wood where everyone must feel the bias of his own up-bringing and social ties, where there is so much that cannot be measured and may or may not be relevant and where there is rarely any opportunity to check the conclusions by experiment.

Our distrust is probably intensified by the layman's tendency to speak of experiments in the social field as though they were comparable with the experiments which obey all the exacting rules of the laboratory. There we can at least hope to proceed by changing one factor at a time. The social scientist would be the last to cherish any such hope: his whole training warns him of the complexity of any situation where human beings are involved. But many people seem to think that if something in the social field is done in a new and usually more expensive way we have only to call it an experiment to justify the conclusions we wish to draw. Certainly we must try new methods and hope to find out why they succeed or fail, but although a new way to check juvenile delinquency or develop a housing estate may give the most favourable results, it is very seldom an experiment from which one can infer the precise factors that have made for its success. A change in the birth-rate, a wet summer or a newspaper campaign are the kind of disturbing element which would be too obvious to mention were it not that everyone who has worked in a laboratory must be aware of having overlooked disturbing factors which should have been just as obvious. We were lucky if our control experiments saved us from exposing our folly, but controls are far easier in the laboratory than in the world outside.

This is a minor grudge. If we harbour it we shall be visiting the sins of the enthusiast on the very people who exist to keep them in check and we must surely welcome any new branch of study which tries to substitute the methods of natural science for unchecked speculation. It is very easy for us to forget our own rules when we allow our feelings to take charge, to say that a result was too obvious to be worth the proof if we happen to like it and if we dislike it to say that statistics can be made to prove anything. Perhaps we have forgotten how much we distrusted some new development near to our own field of science because it was unfamiliar and because we thought its backers claimed too much for it. We ought to remember that the now flourishing science of biochemistry was once distrusted by chemists as well as physiologists. It is human nature for the guild of

natural scientists to delay admitting a new member till he has paid his dues and satisfied the examiners of his competence in the craft.

At present there are many kinds of investigation grouped under the umbrella of social science; the groups seem to have little in common and few of them can put their results into figures, but I think all of us, scientists and laymen alike, are becoming more aware of the value of social investigation and of the degree of certainty it can bring. We may have distrusted the army psychologists who classed us by our aptitudes, we may have read the Kinsey report from unscientific motives and we may continue to allow the accident prone to drive their cars. We can see none the less that there are facts to be found out about our usefulness in society, about our relations to one another and about the risks we take. We can see too that the search for these facts can be conducted on reasonably scientific lines. It is too early to be cautious in spending money on large-scale investigations. They are bound to be costly and those of the social scientist deserve not only the support of national and international funds. There is this kind of support for the subject already, but it is too important a plant to be left in the hot-house atmosphere of research institutes and Unesco teams. It deserves to be in full contact with all the conservative and academic people in universities, the lawyers and historians as well as the economists, biologists and statisticians. There must be more social scientists in our universities so that the rising generation can see what they are like.

I have put in this plea for a subject about which I know so little because it seems to be developing more rapidly in other countries, particularly in the United States. We are handicapped, no doubt, by smaller resources and perhaps by the remains of a national temperament which has made us prefer to work by ourselves and not as members of a large team. We ought not to expect too much. Social scientists like economists may be able to foretell the consequences which are likely to follow in a particular situation, but the statesman who goes to consult them may come away with little to comfort him and may turn to the quack doctor in the next street. We may find out a great deal about the tensions which lead to war without seeing the way to keep ourselves clear of it.

But human beings, when we consider them as material for the biologist, are not to be thought of as incapable of improvement. Other kinds of animal have been found to possess unexpected power of communicating with one another, but we are the one kind endowed with a brain which gives us the power of communicating by putting our impressions into words and appreciating the meaning of the words we hear. Speech would be little use to us unless we could remember what it meant, but memory,

the ability to learn, is a property of the simplest kinds of nervous system. We alone possess a nervous system which gives us the power to order our ideas in words. We alone have this way of thought which allows us to compare a new problem with an old one.

With this unique equipment for thinking and communicating we can form our habits not only from what happens to us personally but from what happens to our fellows and from what has happened to countless generations in the past. And although the storage capacity of a single human brain is limited we have learnt to make permanent records of what has occurred, in visible symbols, so that what cannot be remembered can be found in a book. In this scientific era our store of knowledge is growing so fast that we shall soon need new ways to keep it available. Books have done duty for a thousand years and we should be sorry to lose them, but we can change our habits rapidly and it is already old-fashioned to write a letter with a pen.

This increasing background of experience has meant that we are constantly acquiring new habits and new ways of thought. It does not take us very long to see the way round old quarrels. Darwin and Freud no longer trouble us. We are no doubt born with brains like those of our remote ancestors and when we are grown up we have no more native intelligence than they had, but our brains must have been so modified by what we have learnt that they are physically and chemically different, better adapted for the complex social life of our time. We have more knowledge at our disposal. If all goes well with our training the brains we have ought to be more civilised than those of our fathers and those of the next generation more civilised than ours.

HELPING PROBLEM FAMILIES

The Annual Report of the Elizabeth Fry Memorial Trust contains interesting observations by the warden of Spofforth Hall, a training establishment for inadequate mothers, on the subject of length of stay:

"At first most families came to Spofforth Hall for not more than six weeks. This seemed to be the longest period for which an authority would pay and the Committee had no resources from which to provide independent support. Superficially the improvement in this period might be quite dramatic. It has, however, always been clear that the results of ignorance and mis-

management could not be overcome, and a new pattern of living established, in so short a time. The warden has therefore quietly persisted in an effort to persuade authorities to spend such money as can be devoted to this work on longer periods of training for fewer mothers. It is now unusual for any family to come to Spofforth Hall for less than two months. Mothers who have been placed on probation for the neglect of their children, with a condition that they reside at a recognised training home, must stay for at least four months; the Committee has good reason to appreciate this wise condition imposed by the Home Office.

"These changes during the year have provided opportunity to experiment with the scheme of four months' training approved by the Home Office for 'probation' families and used as the basis of all the help given to mothers at Spofforth Hall. It is an attempt to move in stages from a regime in which virtually all that the mother does is supervised, and her life so simplified that she can concentrate on a few essential tasks, until she is accepting almost complete care of her children, planning and buying the family's food, cooking it on a stove similar to the one she will have at home and having the meal as a family group. The accommodation at Spofforth Hall still does not permit this pattern of training to be carried through as effectively as the Warden would wish.

"The files now contain quite a number of encouraging reports about the families who have returned home after a stay at Spofforth Hall. They show on the one hand the immense possibilities inherent in a home such as Spofforth Hall and on the other the magnitude of the problems which some of the mothers must be helped to overcome.

"Save in exceptional circumstances, the Committee's view now is that residence at Spofforth Hall should be postponed until there is a home in which the mother has the opportunity to practise the advice and help she has received. The Home Office wisely requires, as a condition of the payment of maintenance, an assurance that a home will be available for the mother when she has completed her training."

Title-page and index to HEALTH EDUCATION JOURNAL, Volume XII, 1954, *are available on application to The Editor, Health Education Journal, Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.*1.

THE CHANGING PHILOSOPHY OF HEALTH*

By F. A. E. CREW, M.D., B.Sc., PhD., F.R.S., F.R.C.P.Ed.,

Professor of Public Health and Social Medicine, Usher Institute, University of Edinburgh

To one like myself who occupies an academic chair of Social Medicine, there can be no greater privilege than that of addressing an audience such as this, and withal no more hazardous adventure, since in this school opinion must be sustained by argument. As I understand it, my task is that of displaying the interests of Social Medicine and of demonstrating the interconnections of these with those of the various professional categories represented in this school. This task is made the easier by the fact that every one of us shares one common interest: that of contributing in our own fashion to the augmentation of the people's health. We share one faith: that health is desirable, achievable and maintainable, that much concerning it is known and knowable and that through the application of what is known and through self-discipline it can become the possession of all. If I were wise I should skilfully avoid any direct reference to the nature of health itself and imitate my betters by devoting my time to considerations of the techniques of securing it. But I intend to be foolish and search for a firm, crisp definition of health, because I choose to think that an understanding of the nature of health is fundamental to any discussion concerning the organisation and execution of Health Education projects.

One grave disqualification I most certainly have for the undertaking of my present task. I am separated from most of you by a span of years which, though brief, has been so crammed with revolutionary events that any wisdom I may have plucked from my own experience may have but little direct bearing upon the problems that encompass your generation. The world that produced me and to which I nostalgically belong is dead. Your world, the tortured world nurtured in the womb of war, is to me a strange and somewhat uncongenial place and to its conditions and circumstances I do not easily adjust myself. Moreover, the questing restlessness of science has yielded such unfailing

* Introductory address to the C.C.H.E. Summer School, August 1954.

harvests of power that the list of the principal causes of morbidity and of mortality has changed its content and order with the generations. The major health problems of my generation have given place to others. I am therefore not at all certain that I have any gift of value to offer you. Yet it is my wish and purpose to give to you out of the miscellany of odds and ends that I have accumulated some little thing that might perhaps guide you in your search for the understanding heart.

Your generation, standing on the shoulders of mine, sees further and should achieve much. It is my shoulder that I now offer. Maturing as you have done in an age of violent revolution during which, with unprecedented speed, the whole fabric of our social structure has been changing, it cannot be at all an easy matter for you to assign values to the consequences of the events that in their aggregate have determined that your lives shall be so very different in their pattern from those that we of an earlier generation in the general socio-medical field enjoyed.

For an understanding of the present it is profitable to refer to the history of the past. If you do you will undoubtedly discover for yourselves that the theory, the aims and the social function of medicine—and I use this term in its widest sense to cover the activities and interests of all here gathered—have, in the main, always been reflections of the social theory and aims that prevailed at any given time in any given place. Policies which have affected the place and function of medicine in a particular society have always been attuned to the social theory which was predominant in that society at that particular time. You will note too that the pattern of all that the previous generations of medicine have done has, in the ultimate analysis, been predetermined by the concepts concerning the nature and causes of the corruption of human perfection that at different times have dominated human thought. These concepts, it can readily be shown, derive not from medical origins at all, but arise from the prevailing concepts concerning the nature of the universe, the nature of man himself and of man's place in Nature—i.e., from the prevailing cosmology. Since cosmology has continually changed and has become progressively enlarged, it follows that concepts of disease causation have correspondingly altered with the passing of time and with the progressive amassment of natural knowledge.

In the beginnings of man's wanderings concerning these matters, most manifestations of gross illness could only have been regarded, since they were so utterly mysterious, as the impact upon the human subject of some fearful external force in man's external *spiritual* world, being the expression of the malevolence of some irate deity, the sign of the enmity of some unusually powerful human antagonist or the overt evidence of the malice of some hostile force in Nature. Since the concept of causation

invariably and necessarily determines the nature and procedures of diagnosis, of prevention, and of therapy, the practice of medicine in its beginnings concerned itself with the rituals of exorcism and propitiation. The practitioner—the magician, the sorcerer, the witch, the priest—was one who, being possessed of special knowledge and extraordinary skill, intervened between fearful, painful man and the angry or malevolent force or deity in the spiritual world.

When by the Greeks the supernatural and irrational elements which had become aggregated around disease were destroyed, disease came to be regarded as a natural, and therefore as an understandable, deviation from normality. To them it was an imbalance, a disequilibrium, between the four cardinal elements of life itself—blood, phlegm, black and yellow bile. This concept of the nature of disease derived directly from the prevailing postulate that these were the four animal equivalents of water, fire, earth, and air, the elements of which, according to Greek thought, the universe itself was composed. This being the concept of causation, it followed directly that disease prevention consisted of measures designed to preserve the normal balance and that therapy took the form of procedures to repair the imbalance. Vague physical and chemical factors present in the miasmas in the external *physical* world of the community evoked in the individual reactions of a kind that led to imbalance. Removal or control of these factors led to a restoration of balance, of harmony, of health.

After Greece came Rome. The Roman religious system precluded any development in scientific thought and therefore in scientific medicine. Every disease had its minor deity and if disease was to be avoided or cured then the gods had to be placated in a business-like way. In the later days of Rome the Christian Church arose to achieve great political power. Its philosophy and its bigoted hatred of everything that pertained to paganism were such as to preclude any further development of scientific thought.

It was not long before Western Europe became drained of its Graeco-Roman culture and entered into the Dark Ages which were to blanket Europe for five hundred years. Through the gloom of this interminable night pounded the feet of raiding barbarians. The glare of burning settlements, hovels, and crops fitfully lit the ghastly scene. Pillage, rapine, misery, poverty, and pestilence were everywhere and only in the houses of the monastic orders, guarded by the barbarian's fear of the supernatural power of the priest, did the precious flame of civilisation continue to flicker.

Then at long last came the grey dawn of the Middle Ages, when the landscape of a new Europe became revealed and when a

new Christendom came into being to make the Church the centre of men's lives. During this time men were obsessed with problems of *personal* salvation. The behaviour of man was fashioned by the belief that this earth was but a training ground for the soul where this prepared itself for the realities which were to be found only in the world to come. Men carried their religious creed into secular life to mould and colour their social, political, and economic systems. The feudal system flourished and in this every man held his rank and obligations in descending order from the sovereign, whose right proceeded directly from God. In all the corners of Christendom schools came into being and in their cloisters the din of theological discussion and disputation mounted to a raucous clamour. Monasteries developed to become places of austere contemplation and of active benevolence towards the poor and towards the sick. The physical body, regarded as unimportant, became subject to neglect and humiliation. Bodily cleanliness fell out of fashion and the cultivation of positive bodily uncleanliness began. The ascetic spirit was not interested in matters of health or disease or in the terrestrial happiness of man, and the hallmark of merit was the unwashed, the verminous, the starved and neglected body. No wonder then that sewers stank, that water supplies were polluted, that pestilence roamed the land and that in this society there was no place for the kind of medicine that we know.

Out of the Middle Ages came the Renaissance and the new birth of the notions that natural man could claim an inherent dignity and that his dignity could be expanded by man himself. There was a return to the creeds of classical antiquity and man began to act once more on the assumption that the world in which he lived and had his being was well worth serious examination and could be understood. Schools became absorbed in the classics and Greek and Roman literature, fortuitously preserved in Byzantium, diffused therefrom to the East, returning thence in the train of the banners of Islam to Spain, accompanying Arab scholars up to Italy and spreading thence across Europe, became widely known. Humanism became the striking feature of the times. It was a time of expanding horizons when men were looking for new frontiers, both geographical and intellectual. The Renaissance disinterred the works of Greek medical writers and so led to the foundation of the great medical schools in Italy and Southern France. This rediscovered knowledge was brought to Great Britain and the Royal Colleges were founded, to stimulate great progress in both medicine and surgery based on observation and experiment which stemmed from discoveries in the natural and physical sciences which threw fresh light on the problems of health and disease. These developments in clinical medicine in the main took the form of the exact definition and description of

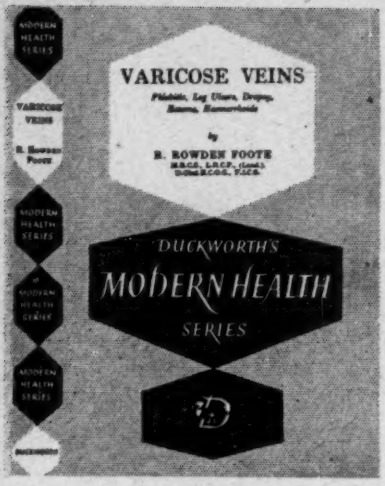
a number of diseases rather than of inquiry concerning their aetiology.

During these centuries the orthodox Hippocratic miasmatic hypotheses battled for mastery with evolving notions of contagion and infection by "seeds" capable of reproduction and present in the external physical world. Slowly but surely the hold of magico-religious concepts of disease causation on the human mind was loosened. Man was at long last crawling out of the primeval slime that had cradled him on to the solid rock of scientific knowledge, breaking the chains of superstition and entering into an ever-expanding intellectual freedom.

To begin with, the scientific spirit moulded the actions of but few, but by the seventeenth century the scientific method was being generally applied to the solution of a wide variety of problems. Community life was moving out of the sphere of religion and the educated laity were free to study and to speculate. Common needs revealed by common dangers in the presence of the great epidemics began to mould social policy. Medical men of high repute were called upon by monarchs and governments to distil out of their specialised knowledge advice on which adequate action might be based, action which might protect the community against the hazards of disease. Since the cause was miasmatic protective action took the form of segregation, elementary sanitation, primitive disinfection and measures of ventilation, these being most commonly reinforced by prayer.

In the eighteenth century, the Age of Enlightenment, the desire for intellectual freedom intensified to become a passion and the prevailing culture became essentially secular. The proper study of mankind came to be man and the test of truth was reason. The search for abstract truth gave place to a search for verifiable facts. There was a great flowering of clinical medicine whilst in the realm of causation the concept of infection rapidly gained ground. It was thought that the spontaneous generation of a contagious influence analogous to a ferment was the cause of epidemic and that this, having arisen, was then capable of direct spread from individual to individual. So it was that the removal of nuisance, the establishment of environmental cleanliness, the provision of adequate ventilation, the disinfection of property, and the segregation of the affected were the accepted measures of control. So it was also that there came into being a clear recognition of the need for the creation of a machinery whereby medical recommendations relating to epidemic control might be put into effect.

This was as far as the human mind could grope along these dark avenues of speculation concerning disease causation until the living micro-organism, brought into being by the lens of the microscope, should be suspected of being, and had been shown



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partly by spasm of the artery at this point. The vessel contains in its wall muscle running in a circular direction around the channel, and since the local disease causes some irritation the effect is often that the muscle contracts, producing a transitory diminution in the size of the channel. That part of the narrowing which is due to permanent change in the wall of the vessel is of course constant, but that part which is caused by spasm is temporary. As has already been described change in the artery may occur and may persist for a long time without producing any severe disease of the heart muscle nourished by the particular arterial branch.

Many people suffer from chest pain, and chest pain may be due to many different causes. The considerable majority of people who have chest pain have not got heart disease. The pain of angina of effort very rarely amounts to severe pain since it is produced as a general rule by walking, and when the walking exercise begins to cause tightness across the upper chest the patient automatically stops before pain as such has developed, or has become severe. Sometimes the sensation is entirely that of a tightness or a constriction without there being any real pain in addition, but more frequently true pain does come on. The diagnosis of angina of effort depends on the character of this pain, on its position and spread and on its relation to exertion. The only person who is qualified to decide whether a patient has in fact angina of effort is a medical man. He is conversant with the other conditions—many of them harmless—which can produce pain in the chest.

Angina of effort occurs during exertion and not after it.

[Specimen page from *Heart Disease*

Modern Health Series

1. **HEART DISEASE.** GEOFFREY BOURNE, M.D., F.R.C.P.

The author writes: "The heart is an organ associated in the lay mind with the existence of life itself. This feeling that one's very existence is dependent on it is probably responsible for the fear which is always aroused by the question of heart disease. But the greatest fears lose much of their sting when their cause becomes the subject of unemotional, factual analysis"—and it is in this helpful spirit that he sets out to give accurate knowledge about the causes, symptoms, and treatments of the various heart diseases.

In examining four hundred consecutive cases of suspected heart disease, Dr. Geoffrey Bourne found that 58 per cent had no organic heart trouble at all, and that the advice and treatment suitable for most of the rest was far less drastic and exacting than the patients themselves expected. His book is a level-headed and authoritative survey of the various disorders and of what can be done for them today in the way of treatment, diet and a changed way of life. It seeks to enlist the patient's intelligent co-operation in the handling of his own case, and will bring hope and consolation to many. A glossary at the end of the book explains the medical terms used, and 3-colour diagrams display the physiology of heart function in a simple manner.

2. **RHEUMATISM.** W. S. C. COPEMAN, O.B.E., M.D., F.R.C.P. and R. M. MASON, D.M., M.R.C.P.

A great many different complaints are loosely grouped under the general term rheumatism—lumbago, sciatica, arthritis, "slipped disc", rheumatic fever, fibrositis, "tennis elbow", gout, spondylitis and ordinary neuritis, to name a few of them.

All are discussed by Drs. Copeman and Mason in this comprehensive survey, which concludes with a chapter on the potentialities of the new preparations Cortisone and ACTH as at present known; another chapter on the social aspect of rheumatism, the facilities available to sufferers under the National Health Service and from voluntary societies; and a most helpful account of the many gadgets available to lighten the daily life of the rheumatic sufferer. No other work available to the general public has so comforting and refreshingly down-to-earth approach to this subject.

3. **VARICOSE VEINS.** R. ROWDEN FOOTE, M.R.C.S., L.R.C.P.

This is believed to be the first book on varicose veins and their complications ever written for the general public, and it is estimated that there are over five million sufferers from this condition in Great Britain alone. Varicose veins and leg ulcers are pre-eminently conditions in which a little practical knowledge of the complaint and its causes can help the sufferer to co-operate with his doctor in expediting his own cure. This practical knowledge is here given in a sane, balanced and interesting manner.

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to be, associated with pathogenicity. It was in this century that the idea that social and economic factors played their not inconsiderable parts in disease causation was first considered in any systematic fashion. This is not to say that the practice of medicine had previously been dissociated from considerations of the social and economic status of the sick whom medicine served. But it was in this century that for the first time the role of the socio-economic factor in aetiology, prognosis, and therapy became the subject of theoretical discussion. A new branch of medicine came into being, to be known as Medical Police and to be the precursor of our Public Health and of Social Medicine.

Medicine, enlarging its horizons, now began its development as a *social science*. This development in the beginning was tardy-gaited for the reason that under the conditions that then prevailed it seemed that the most hopeful way of tackling the major medical problems confronting society was that of gaining control over the disease-causing agencies in the external physical world. The circumstances that then obtained in Europe were not unlike those that exist in certain Asian countries to-day. Poverty, insanitation, low standards of living and of education, insecurity, malnutrition, were widespread ; the machinery of local government was most incomplete and imperfect ; the great pestilences made their abrupt appearances to spread terror and to decimate the populace. Then as now, in the presence of human distress and suffering, it must have seemed far easier to attempt to control a pestilence by medical means than to preclude its appearance by the gradual transformation of the social structure and the economic system by abolishing ignorance, poverty, malnutrition, insanitation and the like.

Medicine now awaited the dramatic appearance of the pathogenic micro-organism. It is not necessary to remind you that the rise of Bacteriology profoundly affected the concepts of disease causation and therefore completely changed the theories and practice of diagnosis, prevention and therapy. The vague seed of contagion, the product of spontaneous generation, made room for the micro-organism living in the external *physical* world of man. From it all that was mysterious and magical was quickly stripped. Bacteriology developed as a science and through its impact on medicine generally determined finally and irrevocably that medicine itself should be scientific. The magico-religious variety of medicine became outlawed.

The growth of this secular scientific medicine, as contrasted with magico-religious medicine, was, of course, part of the growth of science generally and of the outcome of the impact of science upon human thought. It grew because science in application was coming to be recognised as the means whereby man could gain the mastery over his external physical world, because the

very fabric of the social structures which human communities were busily creating was being woven out of the applications of physical science to human and social affairs.

So long as man had regarded himself as a helpless creature exposed to the whims and vagaries of unknowable and malevolent forces ; so long as life itself was looked upon as a transient and unpleasant phase of an unending life mostly to be enjoyed elsewhere ; so long as illness was humbly accepted as a desirable test of character ; so long as scabrous indigence was the hallmark of saintly virtue ; so long was there no place in this world for scientific medicine. But when the promulgation of evolutionary theory enlarged the horizons of man's ideas and hopes, man came to see himself as the product of an evolutionary process by no means yet ended. He came to entertain the view that the existing political, social, and economic structures and systems, which he knew were man made, could be changed by man if he so desired. He began to cultivate the opinion that, through the exercise of his intelligence and of his aspirations, he could reshape his world, and that in this grand adventure scientific medicine was an instrument that could be used in the pursuit of these aims. Disease came to be regarded as undesirable, unnecessary, and preventable, as a barrier standing athwart the road along which mankind meant to travel, and it became man's will that this barrier should be removed. Medicine was to be used to give expression to the public will.

The impact of science, and particularly of physical science, upon medicine from this time onwards had other effects too. For example, it led to the development of a somewhat mechanistic approach to an understanding of defect and derangement, an approach that in spite of its obvious limitations was productive of very great advances in knowledge. The individual came to be regarded as being not unlike a machine, being composed of a number of mutually interdependent tissues, organs, and organ-systems, each of which made its particular contribution to the functioning of, and to the wellbeing of, the whole. The malfunctioning of any part, due to inherent fault or to fault caused by injury or disease, could lead to a malfunctioning of the whole congeries of tissues, organs, and organ-systems. Unless this fault in the part was repaired the resulting disharmony or disequilibrium of the whole could result in death. Diagnosis, therefore, came increasingly to be concerned with the recognition of the nature of the fault of the part and therapy with the restoration or substitution by artificial means of the functioning of the part. It was this concept of the nature and causes of disease that evoked truly amazing developments of such medical sciences as endocrinology and biochemistry and which led to great triumphs in the field of surgery. This particulate concept of the construction

of man served its purpose in demanding a specialisation in interest and activity. But throughout the period of the ascendancy of bacteriology and of specialisation generally there continued to exist and to evolve the major concept that the individual was far more than the sum total of his component parts and that he could not be considered, in respect of health and disease, apart from his external world. Slowly, but with increasing momentum, medicine came to look upon its patients through spectacles fashioned by advancing knowledge in the fields of the biological and social sciences.

Man continued to be seen as an integrated being, composed of a number of mutually interdependent parts with different functions and subserving a series of autonomic actions to maintain the life and efficiency of the individual as a whole, this being in turn the instrument of conscious and purposeful activities. But man came to be more than this. The individual was seen as a member of an *ecological system*. Between the component members of this system there was continual adjustment and readjustment. Man lived in an external *physical* world which included a vast variety of other things, living and non-living, many of which affected, directly or indirectly, the functioning of the individual. This external physical world was ever changing so that the individual was required continuously to adjust and readjust himself to new conditions.

Man was a gregarious animal, choosing to live and living as a co-operative member of a group of his own kind integrated into an organised society. He had his being in an external *social* world. With the other members of his group the individual had interrelationships, more or less intimate, and by these he was more or less, directly or indirectly, affected. Between the members of the group there was continued adjustment and readjustment.

Life was labile and the conditions and circumstances of the external physical and social worlds were ever in a state of flux. Everywhere there was instability. The state of health of the individual was determined by the degree of harmony that existed within him, between him and the other components of the ecological system of which he was a member, between him and the ingredients of his external physical world and between him and the rest of the social group to which he belonged. Many forms of disease were to be regarded as indications and measures of disharmony.

The growth of this concept concerning the nature of man and the nature of health and of disease affected developments within medicine. Each aspect of it evoked responses in the organisation of some aspect of medical interest and activity. The part that relates to the particulate nature of man is represented by the

company of the specialists, from dermatologist to cardiologist; the part which concerns the idea of the ecological system has created great possibilities for developments in the fields of bacteriology, protozoology, helminthology and the like; the medical aspects of the interrelationship of man and his external physical world falls into the territory of physiology, nutritional physiology and public health, whilst those which relate to the external social world have become the concerns of the psychiatrist and of the medical sociologist.

With the passing of time, and with the advancement of knowledge, and against the background of the industrial revolution of the later eighteenth and nineteenth centuries, the emphasis in medical thought and action moved from one aspect of this evolving concept of disease to another. Time came when sensitive men within the population were spurred to action by the social conditions which came into existence to produce the most appalling human degradation, when the furnaces of the dark satanic mills of industry were stoked with the health and the dignity of the human population. A new humanity and a new conception of political responsibility arose to yield new solicitudes and benevolence. Literati, idealists, social reformers and members of our profession castigated the sluggish conscience of the general public and of its leaders and demanded reform. The interconnection of poverty, bad housing conditions, malnutrition, economic insecurity and ignorance on the one hand and the incidence of preventable disease on the other was clearly demonstrated, and the notion that the conditions and circumstances of the external social world included health promoting and disease evoking agencies rapidly gained ground, to give rise to an ever increasing demand that a social structure and an economic system conducive to the maintenance of the public health should be brought into being.

So it was that politics, concerned with the improvement of the social organisation, and medicine, that used the records of illness and death as measures of the quality of the social environment, entered into partnership in their service of the people. The notion of personal salvation gave place to that of *social* salvation and the people rebelled against those social and economic conditions which were so demonstrably causally related to disease. Militant unions and working class movements, which took the form of benevolent societies, sprang from the seeds sown by philanthropists, social reformers and utopian socialists, and also from a series of religious revivals. The demand for legislative reform grew in volume as there developed a widespread appreciation of the elementary principles upon which society must rest, mutual co-operation, equality before the law and the indissoluble connection between social privilege and social responsibility. A

hundred years ago there came into being a new consideration for the individual, a new sense of social justice, a widening consciousness of social duty and a vision of expanding human dignity. In these events the medical profession shared and by them its social function became changed. Legislation in increasing measure came to be the systematic application of medical knowledge to social affairs in attempts to prevent and to remove disharmony between the biological nature of man and the social structures and economic systems which man had invented. Politics and medicine alike entered into the territory of the science of human ecology.

It has long been manifest that one of the major preoccupations of government is that of bringing about human and social amelioration. It has latterly become evident that in the opinion of governments the maintenance and augmentation of the health, happiness, and biological efficiency of the people are prerequisites to the improvement that is sought. It has been completely revealed, moreover, that in the opinion of governments the profession of medicine is an instrument that must be harnessed to these aims of government if this striving after individual and community health is to be hopeful and fruitful. It is in these opinions that the origins of the medical services of central and local government and the National Health Service—the first health promotive and protective, the second disease curative in their aims and functions—are to be found.

Thus it came to pass that whilst bacteriological knowledge was harnessed to the task of sweeping and keeping the external physical world free from the micro-organismal causal agencies of disease, as appreciation of the importance of socio-economic factors in disease causation expanded, the attention and interest of the medical services of central and local authority became increasingly focused upon the social structure and the economic system and the bearing of these upon the health and welfare of the community. The concepts of health and ill-health became enlarged and it came to be recognised that in a modern society the ignorance and stupidity of parents could be far more pathogenic than plague, that marriage could be more antagonistic to health than malaria, that a sense of sin could be more potent in disease causation than the spirochaete and that false creeds could be more evocative of illness than cocci.

Thus it is that governments have become more and more concerned with the problem of the creation of a new social order from which the causative agents of disease of socio-economic origin shall be absent. Thus it is that within medicine the emphasis is changing, since from this profession especially society is demanding advice derived from expert knowledge that shall give exact definition to the needs of man as a biological unit and

as a member of an integrated social group. Advice is also sought concerning the ways in which these needs may best be satisfied. Latterly, therefore, medicine has been the source of knowledge which governments have translated into policy and action. In fact, it can be stated without fear of contradiction that in recent decades and in so far as home affairs are concerned, politics have largely taken the form of the implementation of recommendations derived from discoveries within the field of medical science. Medicine, which formerly was a form of intervention between the individual and the community on the one hand and the living and non-living disease-evoking elements present in the external physical world on the other, is now fast becoming in addition the means whereby a society ensures that between the biological nature of man and the conditions and circumstances of his external social world disharmony shall not exist or develop.

To-day medicine is called upon to discharge yet another function, that of advising those who are concerned with the making of the blue-prints of the new world that is to be; a world that will not cripple or confine. During the last two centuries medicine has generated new communal aspirations by exposing common perils. The process of democratic government has become increasingly involved in administering the results of new scientific knowledge concerning such things as food, homes, work, physical, intellectual and emotional satisfaction. The promotion of the health and happiness of the people is among the major preoccupations of governments and around the shoulders of this profession has been flung the mantle of the elder statesman. The politician, quite at home when dealing with what he regards as human rights, is now being called upon to present policies relating to the satisfaction of human needs. Knowing little or nothing of recent developments within medicine, he mistakes the pestle and the mortar, the bandage, the bottle, the splint, for the greatest gifts that medicine can offer to society. He demands free potions for his painful and fearful constituents, for in his misguided view this is the best that medicine can provide.

To me it seems that he is utterly mistaken, that in this matter at least he is a century and more behind the times. Ignorance, ignorance in high places and a lack of intelligent interest on the part of the general public, now prevent the medical profession from making its maximum contribution to the common weal.

We of the profession of medicine regard it as important that government should look upon health as something to be desired for its own sake and not merely as an incidental to the increased production of materialities for export. We regard it as important that governments should act on the view that individual and community health is something that can be attained and that

they should look to our profession with confidence for the provision of that knowledge out of which the means for achieving it can be fashioned. But we know that the general public and its leaders, the politicians, all too commonly understand far too little about the content, scope and aims of modern medicine to be able intelligently to design an organisation within the framework of which the medical profession could render the greatest possible service to the community. We must therefore do everything we can to permit the general public and the politician to inform themselves correctly concerning these matters. We have to remind ourselves that we are the products of an exceptional education. The bulk of the general public and the majority of their leaders, both local and central, are the products of an educational system which had, and still has, little if any relevance to the immediate tasks of this generation and which grew with no prescience of the gargantuan resources which natural science would place at its disposal. The education, casual or formal, of the typical politician, burning with a yearning to improve the lot of his fellow men and driven by forces so great as to overwhelm his natural humility, included nothing which endowed him with a prevision of the technical forces which were to shape the society whose destiny he was later to guide. At no point did it bring him into contact with experimental science, the only part of the educational curriculum which make demands upon the ability to do in contradistinction to facility of expression. We, on the other hand, were moulded by our contacts with experimental science. But in our education there was little or nothing which inclined to make us conscious of the social consequences of our professional activities. The technology of medicine has far outpaced its sociology, yet we are living and working in a world in which the need for an understanding of the social forces that are operating is greater than ever before.

Thus it is that many of our present difficulties are rooted in the fact that our concepts, our approach to a problem and our methods are not understood clearly by the very people who are confessedly and increasingly dependent, in the field of action, upon our technical advice. Much obstruction to the fuller application of advancing medical science to social affairs derives directly from this misunderstanding. Many are the problems that have been solved medically but which remain socially untouched, or only inadequately touched, so that progress is nullified and scientific knowledge remains unused.

This then is my thesis. Among the aims of this society is the elimination of preventable ill-health and of untimely death. To this end medicine is harnessed to state policy. But a regimen of health cannot be imposed upon the people, health must be desired and must be sought by the citizens individually and

collectively. It is for them, valuing it, to demand that the opportunities for achieving it shall be provided by the elected governments. It is for those represented by the members of this school to create this public demand through the education of the citizenry to an appreciation of the nature of health and of the desirability of possessing it.

I have suggested that health is a state of harmony between the component parts of the individual, between the individual and the other members of an ecological system and between the individual and the other members of the social aggregate. But I am sure that this attempted definition of health is imperfect for it neglects completely any consideration of what for many is the most important harmony of all, that between the individual and his God. I have neglected this because concerning it I am not competent to speak. But it is my personal view that in the maintenance of health nothing is of greater importance than the individual's concept of the meaning and purpose of life, of the nature of man and of the destiny of mankind. Health is more than biological efficiency and social adequacy. It is the reflection of a mind at peace, active, creative and serene. Disease is dis-ease only when the mind is perturbed by pain, anxiety, fear or uncertainty. While devoting much of our energies to the elimination through education of inefficiency and inadequacy, we should not forget that we are intimately concerned with the formulation of answers to the question what are we to live for, as well as to the much more simple question what is the proper way to live.

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HEALTH EDUCATION

Refresher

THE ENDOCRINE GLANDS

Their Influence on Development and Behaviour Pattern

By S. LEONARD SIMPSON, M.A., M.D., F.R.C.P.
Consultant Endocrinologist, St. Mary's Hospital, and to the Paediatric Unit

THE subject is vast and we must be content with an outline of fundamentals. The influence of the endocrine glands on normal physical and emotional evolutions and in the phases of puberty, menstruation, pregnancy and the climacteric, are of importance to the educationist, school-teacher, doctor and intelligent thinker.

What are the endocrine glands ? They consist of the pituitary, the thyroid, the parathyroid, the adrenals, the pancreas and the gonads or sex glands. They are called endocrine because they secrete within, or really directly into, the blood stream a substance, or chemical messenger, which influences the functions of the body in various directions. This chemical messenger was called a hormone by William Hardy in 1905, the term hormone coming from the Greek and meaning to excite or arouse. The term internal secretion was first used by Claude Bernard in 1855 at the College of France. The first real knowledge of endocrinology goes back to 1849, in which year an experimentalist, Berthold of Göttingen, found that castration of a cockerel led to the atrophy of the comb but that transplantation of the testes to another part of the body prevented this atrophy ; and in the same year Thomas Addison, of Guy's Hospital, found that a condition in which patients became very weak, apathetic and wasted, developed pigmentation of the skin and mucous membranes, and usually died after some months, was due to destruction by disease of the two small glands on the top of the kidneys and called, therefore, the adrenal or suprarenal glands.

We see, then, that endocrinology goes back more than a century, but it is only in the last quarter of that century, with the development of chemical methods for extracting and synthesising

the hormones themselves, that modern endocrinology has developed at a great pace.

It will be easier to understand the normal influence and the function of the endocrinal glands if we take notice of the major endocrinopathies, in which the hormone symptomatology might be regarded as a gross caricature of normal hormone action. Such endocrinopathies are associated with destruction of endocrine glands, on the one hand, with deficient secretion ; and on the other hand with overactivity due to general enlargement and hyperplasia or with secretory new growths of the glands.

The Pituitary Gland or Hypophysis.—This is situated at the base of the brain in the midline behind the optic nerves and is connected with the hypothalamus, which is considered to be a part of the brain through which emotions may influence glandular function. It is divided into an anterior and posterior portion. The latter is concerned with water metabolism, and when it is destroyed the patient passes large volumes of urine and has an insatiable thirst—diabetes insipidus. The anterior part is concerned with growth, so that overactivity produces gigantism and later acromegaly. The condition may be initially associated with very great strength and subsequently with weakness, perhaps by blindness, owing to pressure of a tumour on the optic nerves. I have suggested that David might have been fortunate in meeting Goliath in the latter terminal phase of his gigantism and acromegaly. The pituitary gland also secretes a number of trophic hormones which stimulate the other endocrine glands to activity and sometimes to overactivity, and for this reason the late Sir Walter Langdon-Brown, who was Professor of Medicine at the University of Cambridge, called it " the leader of the endocrine orchestra ". If the pituitary is destroyed, the thyroid, adrenal, and sex glands undergo atrophy and cease to function. If the destruction occurs in childhood, the child does not grow and does not develop physically, sexually, and in other ways.

The *thyroid gland* is concerned with growth, mental development and metabolism. Cretinism is a condition associated with a defect of this endocrine gland starting in foetal life, sometimes associated with goitre, and sometimes endemic in geographical areas. A cretin is usually mentally deficient or mentally retarded unless the condition is recognised early and thyroid given. Increased activity of the thyroid, with thyrotoxicosis, may be associated with very great mental excitement, restlessness, nervousness, apprehension, and anxiety, with popping eyes which give the impression of fear, racing of the heart and loss of weight.

We have dealt briefly with Addison's disease due to destruction of the adrenals, but tumours of the adrenal cortex, or outer part of the gland, give rise to virilism and hirsutism in women ; to feminisation, impotence, and growth of breasts in men ; and

in children to a type of sexual precocity sometimes associated with fantastic strength.

Tumours of the sex glands may give rise to sexual precocity, also sometimes associated with exceptional strength and embarrassing libido ; but sexual precocity may sometimes be caused by tumours of the brain, influencing the sex glands via the pituitary gland.

Tumours, or simple hyperfunction, of the islet cells of the pancreas cause an excessive secretion of insulin. This results in low blood sugar and secondary changes in the brain cells, ultimately irreversible, and producing extraordinary changes in behaviour pattern of considerable importance.

Tumours of the parathyroid glands cause an excessive excretion of calcium with weakness and softening of the bones ; and destruction of the parathyroid glands causes low blood calcium with tetanic spasms and other features.

Endocrine influence on childhood development

Height, weight, physical strength, fatness, and sometimes thinness, and other features are influenced or determined by the endocrine glands although the balance of the latter may be genetically determined. The following considerations of adiposity in the child are taken from an address the writer gave to the School Health Service Group of the Society of Medical Officers of Health.*

" Apart from actual strength, the obese are mechanically at a disadvantage in most athletic activities except swimming, where they may excel and be aided by the low specific gravity of their total carcass as well as by maintenance of body temperature. I have seen many reports by gymnastic masters abusing fat boys for their apathy, lack of trying and clumsiness in gym classes when the master himself should have been reprimanded for his lack of physiological and psychological understanding. This is particularly unfortunate as these fat boys are often very sensitive to such criticism or strictures, but the task set them is quite beyond their physical capacity. Neither is there any evidence to support the view that their adiposity is due to indolence or lack of exercise, and further, the physical apathy and even somnolence of some fat boys may well be an intrinsic part of their condition. Since it is also true that their excessive appetite is usually determined by their glandular secretions, they seem to suffer from a series of injustices, and are more to be sympathised with and helped by understanding than by recriminations, exhortations or sarcastic condemnations.

" *Emotion and Intellect.*—Boys suffering from adipose gynandrism (and this constitutes a very large group and not a rare entity) usually manifest some degree of effeminacy, emotionalism,

* *Public Health*, March 1952

sensitivity and artistic, including musical, ability. The same is true of girls with adipose gynism. The girls, being girls, are less troubled by many of the boys' disadvantages and are extremely sociable, affectionate, and popular. The first part of the song 'Nobody loves a fat girl' is far less true than the latter part, 'but oh how a fat girl can love'. They are extremely gay company, lively and loquacious, but they have periods of deep depression. In more technical language, they are cyclothymic. It is relevant that such psychological changes can be produced by the use of adrenal cortisone or pituitary A.C.T.H. These propensities should be borne in mind by those undertaking vocational guidance so that dull routine jobs should be avoided and anything requiring artistic or creational activities such as music, acting, writing, advertising, promotion, etc., should be encouraged. From an intellectual point of view, tall, fat children tend to have an intelligence quota more parallel with their somatic than with their chronological age, so that they do very well at school. This is not necessarily sustained in adult life and early promise must not be relied upon too much in regard to purely intellectual as distinct from imaginative and artistic propensities."

Puberty and Menstruation

Puberty is usually regarded as the time when menstruation first occurs, or in boys at the time of voice-breaking and pubic hair growth. It is important to realise that endocrine changes may occur for some years before this and go on for some years after, and that the adrenal glands as well as the sex glands play an important part. The adiposity of puberty is only one more obvious feature. Acne is another. These physiological adrenal changes are sometimes given the name of the adrenarche and may start as early as seven years and go on until seventeen years or more. Sexual development plays a large part in the formation of character, confidence, judgment, enterprise, initiative, mature intelligence and capacity for sustained study, and its early or late development should be taken into consideration in assessing school work and behaviour and in formulating term reports, if they are not to be unduly pessimistic nor eulogistic. A recent biography on a famous economist shows the tremendous change in his school work and natural leadership that resulted from early sexual maturity and skeletal growth, and in his case, as in many others, the early puberty brilliance was sustained in adult life.

Menstruation in adolescents and adults may be a simple and undisturbing phenomenon but in others there are associated emotional troubles, often preceding menstruation and giving rise to the term "premenstrual tension". Apart from a nervous tension and restlessness, the individual may behave with unusual irresponsibility or irrationality, may have headaches, backache,

swelling of the face, and general increase in weight through fluid retention, all features being relieved on the first or second day of menstruation. Painful menstruation is a problem requiring a separate article.

Menopause and Female Climacteric

As in puberty, the menopause or cessation of menstruation is only one feature, the other endocrine changes taking place over a number of years, before and after the menopause. Physical and emotional changes depend on the genetic constitution and the predisposition of the patient. Though a tendency towards nervous instability is always present at the climacteric, the degree and extent of the changes depend on the pre-existing nervous constitution of the individual. "Well-balanced" individuals pass through the climacteric with only minor symptoms, whereas the less stable may develop a severe neurosis or perhaps a psychosis. Anxiety, emotionalism, nervous tension and irritability are all common characteristics of the climacteric woman, and though she often knows that her anxiety has no reason, she cannot prevent herself from feeling anxious; and often this anxiety is projected on to her family, with disquieting results. The nervous tension is often distressing and the patient says she feels "all pent up inside", as if she must burst or scream aloud. Hyperadrenalism might explain some of the abnormal feelings. Insomnia is often troublesome.

Vasomotor instability is manifested by hot flushes (vasodilation) often starting in the face and travelling all over the body. These may be spontaneous or induced by emotion, and may occur many times a day. The face and neck are seen to go a deep red. The flushes are often followed by a wave of chilliness (vasoconstriction) and profuse perspiration. The blood-pressure may fall during the flushes and rise with chilliness. Paraesthesia, cold extremities, tremors, palpitations, colonic spasms, cardiospasm, angioneurotic oedema, and pseudo-angina are other features. Migraine may also be very troublesome at the climacteric.

Sex function may continue quite normally for twenty or more years after the climacteric. Libido may be exacerbated. Occasionally atrophy of the vagina or vaginitis causes dyspareunia but this responds to oestrogen therapy. With an artificial menopause, loss of libido is rare and there may be some increase. Loss of libido may rarely be observed at the natural climacteric, although subsequently there may be a gradual waning, but not necessarily so. It is not easy to differentiate psychological from endocrinological factors.

Understanding, sympathy, and reassurance by the family doctor, as well as appropriate therapy, prove of infinite value to large numbers, but the psychotherapist is sometimes needed.

The climacteric often causes disruption of many homes, and the husband, too, should be given to understand the need for forbearance and kindliness. In these enlightened days, however, most women should be able to approach and pass through the climacteric without fear or major disturbance.

Male Climacteric

It has been held for some years that nothing happens in man comparable to the female climacteric, but this view is to-day regarded as less well-founded than was supposed. There is no abrupt manifestation such as occurs in woman with the cessation of menstruation but it is probable that the male gonad (testis) decreases in activity gradually in the sixth and seventh decades and later. The evidence is based on clinical histories and on the decrease of 17-ketosteroids in the urine with the decades. In fact this test indicates maximum virility at the age of 30, with a slight gradual waning subsequently. The male hormone is not only concerned with reproduction but also influences muscular strength, urinary function, general well-being, and behaviour pattern. Thus in the eunuchoid, male hormone abolishes vacillation and indecision and a tendency to retire from reality situations, and encourages a healthy degree of aggression and enterprise. Many of the characteristics developing in some males after the age of 50 appears to be related to a decrease in their male hormone secretion and to benefit in some degree by substitution therapy with testosterone. These views do not indicate that the waning of testicular function is the cause of old age and that rejuvenation is a logical sequence of male hormone therapy: on the contrary, the diminution of testicular function is only one manifestation of the ageing process, the fundamental cause of the latter being as yet beyond our understanding. It is also necessary to issue a warning that male hormone therapy given to elderly people with poor reserve in their cardiovascular system may prove harmful rather than otherwise.

Adrenal disorders and personality changes

Excessive function of the adrenal gland may involve the hormones related to cortisone, hormones which influence sugar and fat metabolism; or androgenic hormones which influence muscular development and the abnormal growth of hair on the face and body; or both. Patients suffering from an excess of adrenal glucocorticoids (cortisone) have a disorder which is named after Harvey Cushing, the Harvard neurosurgeon, who described the disorder in 1932. These patients often tend to be depressed, may suffer from delusions and may be suicidal. Occasionally, however, they are very restless, emotional, irritable, and excitable. It is interesting that these psychoneurotic or psychotic

features may occasionally develop in patients treated with cortisone for other disorders such as rheumatoid arthritis, but it is only fair to add that the psychological constitution or background of the patient is of importance in this direction. One of my patients on large doses of cortisone drove his car recklessly and dangerously and complained of intolerable tension and a feeling that everything was happening at a much faster rate than normal, symptoms which disappeared on reducing the dose of cortisone. It is important to remember, as over the whole field of endocrinology, that the disease or syndrome is in some cases a gross caricature of normal, and in the upper limits of normal range are people with a hyperadrenal glucocorticoid constitution who may have similar psychiatric features in minor degree.

With an excess of adrenal androgens a woman may lose her normal feminine contours and develop bulky muscles, considerable strength and much hair on the face and body; she may also suffer from an excess of normal eroticism. Although these physical changes in themselves, accompanied as they often are with the fear of "becoming a man", may well be a sufficient cause for psychoneurotic symptoms, it is also possible that the excess of androgens in the blood may have a more direct effect on behaviour pattern and personality. Some of these patients become aggressive and decisive but others may become depressed and melancholic. With the mixed syndrome the patient may be both adipose and virile and psychiatric features are met with. However, it must be remembered that in the majority of patients any psychoneurotic features can be explained on the simple lines of anxiety due to the physical condition. Some degree of hair on the face and body cannot be regarded as an abnormality in women because it is so frequently met with, developing either at puberty or during pregnancy or at the climacteric. It is very important that it should be realised by all that such mild degrees of hirsutism are not an abnormality but part of normal bodily structure. The degree of anxiety and sometimes despair manifested by some women when mild hirsutism develops is far beyond what the objective condition would appear to justify, and deeper psychological causes for the apprehension should be sought quite apart from any other measures that are undertaken.

Adrenal insufficiency due to destruction of the adrenal glands (Addison's disease) is often associated with abnormal behaviour patterns and psychoneurotic features—e.g., apathy, irritability, suspicion, contrariness, negativism, absence of initiative or enterprise, and sometimes with depressive states, and rarely with major psychoses. The response to hormone therapy, particularly cortisone, is often dramatic.

Simmonds's disease is caused by a primary destruction of the anterior pituitary gland but there is subsequently loss of adrenal

function, and it is therefore not surprising that in this disorder one meets with depression and delusional insanity and, more commonly, with changes in behaviour patterns characterised by apathy and inertia. Sometimes these are unrecognised as being due to the endocrine state and in one case the family was particularly troubled by the fact that the mother, who had previously been an ideal mother of cheerful personality and with great solicitude for her children, was now completely indifferent to the home and to the children, dirty and careless, and with no regard whatsoever for her own personal appearance or clothes. All this had followed a pregnancy in which there had been a great loss of blood and, as a result, a lesion in the pituitary gland. Hormone therapy restored the personality pattern to normality.

The Thyroid Gland and Behaviour

With excess of thyroid secretion (thyrotoxicosis) patients are excitable, irritable, and restless. Just as their organic metabolism is working at a rate far above normal, so are their mental and emotional processes. In a mild degree this adds a certain amount of attractiveness, the patient being very much alert, alive, and responsive, but in more severe cases the patient is "on edge" and has a similar effect on everyone in contact. In a small percentage of cases a maniacal and delusionary state may develop.

In the opposite condition of thyroid deficiency (myxoedema) the patient is dull, inert and lethargic, as well as being very sensitive to cold, all symptoms responding rapidly to thyroid extract. In the untreated severe cases, patients may develop delusions and hallucinations and even acute mania. Unfortunately the primary condition is sometimes unrecognised and several of these patients find themselves in asylums. To draw attention to this, Dr. R. Asher wrote a paper (*Brit. med. J.*, 1949, **2**, 555) describing several such cases with the dramatic but justifiable title "Myxoedematous Madness". He drew attention to previous descriptions by myself and also to a vivid picture of the condition by the novelist A. J. Cronin.

Low Blood Sugar and Behaviour Pattern

The principal cause of low blood sugar is an excess of insulin, either given in error to or by a diabetic patient through a wrong calculation of the dosage or due to the diabetic failing to secure food within half-an-hour of such injections. More serious are cases, frequently missed, in which the islet cells of the pancreas secrete an excess of insulin. As regards the former, it is well recognised in this country that an excessive insulin dose must always be considered when a person's behaviour pattern becomes abnormal in unexpected circumstances, and diabetics are encouraged to carry a card to say that they are receiving insulin.

In other countries diabetes is still sometimes regarded as an affliction to be hidden so that an excess of insulin is not so easily suspected and tragedies may thereby result. Patients with excessive insulin secretion by their own pancreas are sometimes treated for psychoneuroses before the real condition is discovered. In minor form, many people suffer from low blood sugar unless receiving their meals regularly, and in such a state they may be very irritable, short-tempered, and unreasonable. This is the basis of the old adage "Feed the brute", or of the common practice of preceding a delicate conference by a good meal.

Apart from an excess of insulin, low blood sugars may also be found in Addison's disease and Simmonds's disease and may produce hypoglycaemic symptoms.

As well as apprehension, irritability, tremor, inco-ordination of speech, and perspiration, the low blood sugar from any cause may manifest itself by convulsions (which are sometimes diagnosed as epilepsy) and by coma.

Conclusion

The occurrence of unusual behaviour patterns, or of psychiatric disturbances, associated with well-recognised endocrine disorders, is in itself important and makes us aware of the potential influence of endocrine secretions in these directions. However, the importance would be limited, although significant, if endocrine disease had no relationship to normal constitution. My experience and observations over the past 20 years have left me in no doubt that normal individuals may be divided broadly into classes characterised by relative excess or deficiency of some endocrine gland secretions and that these determine varieties of endocrine constitution. In other words, many endocrine syndromes have their representation in minor degree in accepted normality, either throughout the life of the individual or in certain phases of that life. One can also recognise certain behaviour patterns and psychoneurotic states related to these endocrine constitutions, or phases of endocrine dysbalance, which appear to bear the same relationship to them as to the more serious endocrinopathies. The study of the latter is therefore of value not only in itself but in giving us insight to behaviour pattern, physique and personality in normal individuals. I would, however, particularly point out that the endocrines are by no means the only or even the most important factor in behaviour pattern and still less so in psychiatric states. On the contrary, quite apart from psychic trauma, hurtful experiences, environment and education, in the life of an individual, there may be an innate genetic tendency to unusual behaviour patterns, psychoneurosis or psychosis. These considerations do not justify us in ignoring the fundamental importance of the endocrine glands in health and in disease.

International Report

PLANNING A CONFERENCE

A Chronological Story of the Development of the European Conference on Health Education of the Public*

By RUTH E. GROUT, M.P.H., Ph.D.
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University of Minnesota

A SUCCESSFUL conference is built in accord with the needs it is to serve. Its foundations are rooted in the situation from which it arises; its framework is constructed with its specific purposes in mind; and its detailed design reflects the needs and desires of those who attend.

In the following pages, a description is given of the preparatory plans for the first European Conference on Health Education of the Public, held in London on April 10 to 18, 1953, under the sponsorship of the World Health Organisation, Regional Office for Europe. This Conference had its unique characteristics suited to a particular combination of circumstances. This account, then, should not be viewed as a pattern for other conferences, although some of the steps in planning could readily be applied to similar situations.

Part I gives background information on the evolution of the Conference and Part II outlines administrative decisions that were made regarding its final setting, structure and personnel. Although some aspects of the Conference were the result of day-by-day planning while the Conference was in session, much careful advance attention was given to designing a conference which would fulfil the general objectives for which it was intended.

Part I: EVOLUTION OF THE CONFERENCE

At the founding meeting of the World Health Organisation, Regional Committee for Europe, held in September, 1951, the decision was made to give early priorities to a conference on

*This article is a condensation of a statement prepared by the World Health Organisation, Regional Office for Europe, and Roneoed for distribution by the Office. The author was a consultant in Health Education of the Public to the European Office and editor of the Conference report.

health education of the public. Thus, this first meeting reflected the long-term objectives of the World Health Organisation, of helping regions, countries, and local communities to help themselves. Though no final plans were made for a conference, interest was sufficiently great to warrant initiation of active steps toward its realisation.

1952

July–September

During the summer and fall of 1952, an extensive schedule of visits to countries by two consultants was undertaken to secure information essential for Conference planning. An effort was made to secure facts about each country's problems and programmes so that the Conference would be a part of a continuing regional development in health education. Specific questions were raised with leaders regarding the desired objectives and characteristics of the Conference. These questions were:

1. Where and when should a conference be held and for how long ?
2. What accomplishments might be expected ?
3. How should participants be selected ?
4. What questions and topics should be considered in planning the programme ?
5. How helpful would it be to have each country prepare in advance a statement on health education programmes in that country ?
6. What needs to be done through advanced planning to assure action following the conference ?
7. Should a few leading educators be invited ?
8. In what language or languages should the conference be held ?
9. How should the programme be conducted ?
10. How soon should official invitations be sent ?

By September, eight countries had been visited and people from several other countries had been interviewed by other means. A pattern of response was emerging so that findings could be consolidated and plans could be made for further visits.

Final approval for the Conference was given at the annual meeting of the Regional Committee for Europe held September 25–27.

October–December–January, 1953

During these months, four other countries were visited. Recommendations, in general, were in accord with earlier findings, but new problems emerged and added suggestions were made. A brief summary of suggestions from the countries with which contact was made is given here:

Location : A centrally situated country, where there would be opportunity to observe local educational programmes in action.

Time : At the earliest possible date, preferably in 1953, before the Sixth World Health Assembly.

Length : One week or two week-ends with the week-days between. Most countries considered two weeks as too long for an initial conference.

Accomplishments Expected : Consideration of general principles and policies with discussions directed toward identification of constituents of a total programme of health education of the public and toward planning for expansion of health education within countries and the European region as a whole.

Selection of Participants : Each country should select at least two delegates. Delegates should represent different disciplines engaged in public health, as well as different types of official and voluntary agencies.

Programme Suggestions : These suggestions fell into four main categories, namely, scope of health education ; role, responsibilities and preparation of health workers in health education of the public ; planning ; and methods and techniques.

Value of Advanced Statements from Countries : Very helpful, if the statements could be kept brief and to the point.

Advanced Planning on a Regional Scale to Assure Action Following the Conference : In each country, call leaders together before the Conference to discuss problems for consideration. Hold meetings following the Conference to report the discussions and decisions.

Programme Methods : Discussions, lectures, demonstrations, and field trips were mentioned. All wanted ample time for informal discussion. Several suggested that the Conference itself should serve as a demonstration of different types of educational methods, as for example, symposia and panel discussions.

Date for Issuance of Invitations : Responses ranged from two to six months in advance.

Early in September, and before the annual Regional Committee meeting, a tentative Conference plan was drafted in line with recommendations received up to that time. As further ideas were contributed by the different countries, the plan was modified.

October 29. First Meeting of the Conference Planning Committee was held in London

During October, formal negotiations were initiated with the United Kingdom Government to make specific arrangements for this Government to serve as a host to the Conference. On October 29, members of the Ministry of Health, United Kingdom, and two staff members of the European Regional Office, W.H.O., met to consider the general tentative plan for the Conference, in the light of the local situation. The Conference programme,

living and working arrangements, and administrative details, were subjects for special discussion.

During November and December, negotiations between the Regional Office and the host country continued.

November. Invitations were sent to countries

Countries were invited to send two delegates each to the Conference. Each invitation contained information essential to the choice of suitable delegates, as for example, the purposes of the Conference, provisional date and location, type of participants desired, and financial arrangements. A request was also made for a brief statement on the present status of health education within the country.

1953

January 8. The second Planning Committee meeting was held in London

By the time of this second meeting, the host country and W.H.O. had become deeply involved in many details and the need was felt to consolidate thinking and to make firm decisions on as many points as possible.

Two liaison persons between the Ministry of Health and W.H.O. had now been chosen by the United Kingdom, one to handle administrative arrangements and the other technical details. The Foreign Office of the United Kingdom had also been brought into the planning. This Office was to handle all external administrative arrangements and to provide an executive secretary for the Conference. In addition, the Ministry of Public Works, ultimately responsible for securing Conference accommodation, was in contact with the planning group.

A revised yet still tentative programme was reviewed and further defined at the planning meeting; Conference headquarters, not yet fixed, were given special attention; and other administrative details were worked out. A tentative block of hotel reservations was made at this time, also.

January–March. Chairman and keynote speakers were selected

The process of translating a programme plan into a living entity is usually long and tedious—the London Conference was no exception to the rule. The decision was made early to select as many programme participants as possible from among the delegates themselves. To follow this decision, a delay until delegates' names had been received was inevitable. Though formal steps were initiated in January to secure chairmen and keynote speakers, the task was not completed until a much later date.

As each speaker was secured, he was given the summary of programme suggestions which had been prepared from ideas obtained in the different countries.

January. A Conference library was started

Early in January, the Library Consultant of the Regional Office, W.H.O., started setting up a library for the London Conference. The purposes of the library were two-fold: (1) to provide reference materials for participants' use during the Conference, and (2) to stimulate participants to build up, on their return home, library materials suitable for their own needs.

Books sought from publishers for the library included standard references in health education; literature on the educational, sociological, psychological, anthropological and administrative aspects of health education; and references on individual teaching and group methods of working with people. Literature on audiovisual education was also sought.

A large collection of reprints of journal articles was developed by the Librarian to be available to participants on request.

In addition, each country was invited to send selected audiovisual materials which had been developed in the country and had been used effectively in local educational programmes. These pamphlets, posters and similar materials became an integral part of the Conference library.

Before the Conference convened, a reference list was prepared for distribution to participants.

February and March. Letters and Conference materials were mailed to delegates

In time, the names of delegates began to reach the Regional Office. Subsequently, each delegate was sent basic information on the Conference and a questionnaire (curriculum vitae) to be filled out with information about his professional training, experience, and contributions.

Other letters followed, with programme enclosures, as well as lists of delegates, and reports from countries. In one letter, each delegate was told that on the first day of the Conference an opportunity would be given the participants to raise questions, briefly and informally, which they would like to have considered at the Conference. This advanced information gave participants opportunity to discuss their questions, if they wished, with their colleagues at home.

March 6. Third meeting of the Planning Committee was held in London

During January and February, the Regional Office, as the sponsoring agency, and the United Kingdom as the host country were hard at work on administrative details.

This third meeting was concerned with final arrangements on meeting rooms, finances, personnel, programme, entertainment, and personal services to delegates. These problems are dealt with in more detail in Part II.

At this time, the decision was made that a Conference Steering Committee would replace the Planning Committee when the Conference began. This Steering Committee would be representative of Conference leadership and membership and would be responsible for day-by-day Conference planning.

April 9. Fourth meeting of the Planning Committee was held in London

This final meeting of the Planning Committee as such, held the day before the opening of the Conference, provided opportunity for a final check on all Conference details. Each agency concerned with the Conference became fully apprised of the work the other agencies had undertaken in the past month and loose ends were pulled together.

April 10–18. The Conference takes place

The proceedings of the Conference have been given in the published report.*

Part II: Administrative Arrangements for the Conference

At the heart of every conference are the people in attendance and the programme which has been built to meet their needs The success with which the two are brought together into a smoothly functioning whole is influenced greatly by the amount and quality of administrative planning both during the preparatory stages and while the conference is in progress.

A few of the administrative decisions for the London Conference are presented here. In reviewing this summary of arrangements, the reader will need to keep in mind that this was an international conference on a multi-disciplinary basis, and set up to provide the widest possible opportunity for delegates to experience different methods of education. In one-language conferences of more homogeneous groups, doubtless fewer personnel and less elaborate equipment would be needed.

General Administration of the Conference

Ultimate responsibility for Conference administration was vested in the Secretariat of the W.H.O. Regional Office for Europe with the co-operation of the U.K. Ministry of Health. Early in Conference planning, the British Foreign Office Conference and Supply Department, on request of W.H.O. and the Ministry, took over the detailed local administrative work.

Staff

Existing personnel in the Secretariat and host country were used in line with their usual distribution of responsibility. A technical staff experienced in health education of the public and

**European Conference on Health Education of the Public.* (World Health Organisation, Regional Office for Europe, Geneva. 1953. 58 pages.)

in conference technique was also considered necessary. The staff consisted of:

A. *Technical Staff*

1. *Secretariat:* Three consultants in health education of the public; one consultant in public-health administration; one librarian.

2. *Ministry of Health:* One Technical Liaison Officer; one part-time officer to handle field observation schedule.

B. *Other Personnel*

1. *Secretariat:* Two secretaries; four précis writers (two French, two English); four interpreters (two French, two English); one part-time press officer.

2. *United Kingdom:* One executive secretary (provided by Foreign Office); two messengers; one administrative liaison officer in Ministry of Health on part-time basis before Conference opened; two control operators for simultaneous translation; two caterers for coffee and tea.

Location

London was chosen because it met the demand for a central location within the European region and had personnel experienced in health education available to assist with Conference details. Moreover, it was accessible to centres for observation of health education programmes.

Conference and Living Accommodations

Tavistock House, the headquarters of the British Medical Association, of the Central Council for Health Education and of other health, welfare and educational agencies, was selected from among the few possible choices as most nearly meeting conference space and accommodation requirements within the budget available. A plenary session room large enough to seat 50–60 persons at tables equipped for simultaneous interpretation was available as were four small committee rooms informally arranged with conference tables and moveable chairs. A limited space near the plenary session hall was used as a delegates' lounge and library. This conference location provided a unique professional atmosphere for such an international gathering.

Russell Hotel, Russell Square, conveniently located in relation to Conference headquarters, was chosen for living quarters. Thus, overseas delegates and the Secretariat of W.H.O. were housed under one roof.

The British Medical Association's cafeteria and neighbourhood restaurants were used when convenient, inexpensive meals were desired.

Special Services to the Delegates and Social Events

An Information Bureau was maintained by the Women's Volun-

tary Service and was open from 9.30 to 12.30 daily. Assistance with 'plane reservations was also given by this group.

Morning coffee was served daily in the Delegates' Lounge and afternoon tea in the individual Committee rooms.

Early in the Conference, the delegates were honoured by a reception by the Ministry of Health at the House of Commons. The Central Council for Health Education gave a party at Tavistock House on the first day, which made it possible for delegates to meet each other informally before the regular meetings began. On the last day, W.H.O. Regional Office for Europe held a reception at the Russell Hotel.

Equipment and Supplies

An effort was made to use local working tools as far as possible in order to minimise transportation costs. Several agencies shared in the provision of the materials. A list of equipment and supplies follows:

1. Simultaneous interpretation equipment.
2. Roneoing facilities.
3. Library books, pamphlets, and audiovisual materials.
4. Audiovisual equipment.
5. Display racks, bookcase, and reading tables.
6. Six typewriters with international keyboards.
7. Additional furniture, as for example, lounge chairs.
8. Stationary for correspondence and Roneoing.
9. Folders for each delegate to hold Conference reports.
10. Pencils, writing pads and ash trays for each desk in the plenary session hall.
11. Badges showing name and country.
12. One telephone line in Delegates' Lounge for official use.
13. Mid-morning and mid-afternoon tea.

Interpretation and Recording of Proceedings

The working languages of the Conference were English and French. Interpreters alternated their services throughout the plenary sessions of the Conference. For group discussions, the delegates were divided into three English-speaking and one French-speaking group.

A complete record of the plenary sessions was made by précis writers while records of group discussions were kept by rapporteurs selected by each group.

BOOKS

GROUP DYNAMICS RESEARCH AND THEORY. Edited by Dorwin Cartwright and Alvin Zander. (Row, Peterson and Company, New York. 1953. Pp. 642.)

The last quarter of a century has seen a great increase in research on group dynamics, largely due, as Cartwright and Zander say, to "the simultaneous acceptance of two propositions—that the health of democratic society is dependent upon the effectiveness of its component groups, and that the scientific method can be employed in the task of improving group life".

The newness of this subject, the varied character of the topics which compose it and border on it, and its importance to a wide range of human interests, makes this present review extremely valuable. The task of selection and interpretation of the material is a formidable one and the editors, members of the staff of the Research Centre for Group Dynamics, University of Michigan, have attacked it with bold strategy. Their plan has been to select research reports of outstanding interest (fifty-one workers were involved) relating to six main themes. These are, Approaches to the Study of Groups, Group Cohesiveness, Group Pressures and Group Standards, Group Goals and Group Locomotion, The Structural Properties of Groups, and Leadership.

The editors have themselves contributed an introductory chapter to each of these six sections which helps to emphasise the interrelations of the constituent papers and refers to relevant work not reported in them. They underline the main directions in which research on the theme is going, and indicate fruitful fields where further study is needed. These chapters can be read separately to get an overall picture of some present trends of research in group dynamics.

Among the individual articles are many of particular interest to educationists, for instance, Kurt Lewin's "Studies in Group Decision" and White and Lippitt's "Leader Behaviour and Member Reaction in Three 'Social Climates'".

In providing this scholarly introduction to group dynamics, the editors have earned the gratitude of workers in many scattered fields. They have produced an extremely valuable book which is, however, despite their labours of selection and synthesis, not to be recommended for light reading. A flicking over of pages will doubtless convey a few bright ideas, but repeated reference and prolonged digestion is necessary to get the best out of these studies, so complex are their implications.

M. L. JOHNSON.

MENTAL HEALTH AND HUMAN RELATIONS IN INDUSTRY. A Symposium edited by T. M. Ling. (H. K. Lewis, Ltd. 1954. Pp. 265. Price 21s.)

This ambitious work aims to express a holistic concept of health. Dealing with the major psycho-social problems of industry, Dr. Ling briefly compares the integrated primitive community with modern society in which work is only a means to living and is fragmented from other life activities. Money, prestige, security, a sense of belonging, approval, and creativeness are human needs which, if met in modern industry, will increase mental health. V. W. Wilson follows this statement of aims by dealing with the individual and the group and outlines the results of modern writings on the subject. This section seems to me somewhat weak, perhaps owing to the small space allocated to it, though references to inter-group relations are a useful reminder that top-group relations are a potent factor in bottom-group relations. Ling then takes some twenty pages on psychological and occupational effects of illness and accident, and deals with this subject in a scholarly fashion.

Dr. Tredgold tackles the problem of aggression in industry, and, like all the contributors, deals with work problems rather narrowly when one considers the stated "holistic" aim of the volume. Tredgold deals with aggression as if it were largely to be resolved by understanding and good humour, and ignores structural causes that provoke aggression. What, for example, of the profit motive and the authoritarian hierarchal structure in industry? Do the operations

of these provoke frustration and aggression? And why no article on the perhaps more dangerous social disease of submissiveness? Surely the writers of this volume do not think that a submissive body of workers is a healthy body.

V. W. Wilson's treatment of selection and allied procedures is informative and competent, and H. G. Maule's handling of problems of the working environment brings out the need to consider basic factors such as factory location, lighting, heating and ventilation, colour, and work planning in health promotion. In Dr. J. J. O'Dwyer's Contribution of the Industrial Medical Officer there is an able, if brief, exposition of the duties of the medical officer, and a hefty dig at management's lack of concern for health which is refreshing in this formal, well behaved volume with its concern, it seems, for not challenging management too hardly.

The contribution of the personnel manager is described too briefly by H. Watton Clark and will be useful to the beginner rather than to the trained personnel manager. Two matters of importance are neglected : one, in dealing with joint consultation the writer quotes Dr. W. H. Scott's work in three Merseyside firms and neglects to say that Scott reports that joint consultation in these firms is largely a failure so far as human relations are concerned ; two, the writer seems not to know of the projects in Britain in which the "personnel manager" is democratically appointed so that his significance as a "tool" of management is lessened and his usefulness in relationship work increased. Allied to this is the use of permissive discussion techniques in a number of factories and offices—all the writers in this volume show an astonishing ignorance of these experiments.

The place of the psychiatrist in industry is well dealt with by Tredgold ; it would have been worth mentioning the danger of the psychiatrist and the psychologist maintaining a poor structure by tinkering with effects and cautiously ignoring causes. The psychiatrist with a truly scientific outlook will be a gain to industry, but the "magician-psychiatrist" may be a social reactionary. J. F. Scott's article on research in industrial management is a modest and thoughtful contribution on an important subject, and T. A. Lloyd Davies' contribution on society and work is interesting if not very profound ; for example, while Davies deals with work as a social habit, he does not deal with it in terms of its role in the growth of individuality and, in a community setting, of personality (for our purpose a person is an individual in relationship). The stress on right, interestful work as a factor in health is to be commended.

Dr. Ling contributes two further articles on Teaching of mental health and human relations and Research on mental health and human relations, respectively ; both articles provide the reader with a sound reference basis and an idea of the scope of the subject and the means being used to handle it.

That the volume concludes with an article, all too brief, on Implications for Management indicates that it is management which has the real power to foster the weal of the person in work ; I should have liked to read Implications for Workers by a Trades Union research worker with workshop experience. Without active individual worker participation, most of the health measures recommended for adoption by management could increase that *dependancy* which leans on leaders and organisations for support, and which, surely, is a disease threatening the democratic social structure. Alas, the problem of dependancy is not dealt with in this volume : if it had been, there might have been a real challenge to the management hierarchal structure and management attitudes.

This is an informative volume which will be a useful reference book for health workers and influential managers. A selected reading list of, say, twenty books, from the hundreds referred to would be helpful to readers of possible future editions.

J. J. GILLESPIE.

STRESS AND STRAIN IN MODERN LIVING : SPECIAL OPPORTUNITIES AND RESPONSIBILITIES OF PUBLIC AUTHORITIES. (Proceedings of a Conference held by the National Association for Mental Health, March, 1954. Pp. 112. Price 7s. 6d.)

This booklet reports the proceedings of a lecturing and question-and-answer conference, and I have a feeling that if the group discussion method had been incorporated (and one would expect that in such knowledgeable circles) there might have been more vigour in the published report ; also, the melancholic

booklet cover might have been avoided and the price be more reasonable.

There are three main headings to the subject-matter: (1) Stress and Strain from the Social Standpoint, Professor T. S. Simey, (2) Stress within the Family, Drs. Dicks and James and (3) Stress of Work and Social responsibility, M. J. S. Clapham and Dr. T. F. Main. Solutions and Suggestions are handled by Professor I. G. Davies and N. C. Rimmer. Discussion points and questions and answers come from various quarters within the conference.

Apart from the eminently sensible contributions from Drs. Dicks and James, the conference proceedings seem to have been somewhat dull and uninspiring. The labours of the Conference have given birth to a very small parsonic egg, and it will not hurt the digestions of public authorities who sample it.

J. J. GILLESPIE.

THE DISABLED WORKER. (Vol. XX, No. 368, of *Planning*, pubd. every 3 weeks by Political and Economic Planning, 16, Queen Anne's Gate, S.W.1. Single copies 2s., annual sub. £2, £1 for teachers and students.)

Within the ten years that have elapsed since the introduction of the Disabled Persons (Employment) Act, there has been a maturation of thought regarding the question of disabled persons. There has been a full provision for dealing with all types of disabled, and efforts have been made to train and prepare them for work that is within their power. Despite genuine attempts and ample goodwill there is a feeling that the effort is not producing the desired result.

Although ten years have passed, the problems presented in the care and rehabilitation of the disabled are still formidable. This PEP Report is largely a factual account of the services available; four ministries are involved, and in view of the great expense entailed it is worth considering whether a simpler and more direct approach could not be made to the problem—it is, for example, suggested that there should be a new public corporation set up to care for all disabled persons over school age. This requires very careful consideration, for if there will be special arrangements for all disabled persons, what happens to such comparable groups as the aged, where a large and increasing number of disabled persons also belong?

The problem of the disabled person presents two facets—should rehabilitation be considered from the economic aspect or be a humanitarian project? In other words, are we to try to justify the money spent in terms of economic return or that of attempts to promote human happiness? Understandably enough, this is not considered in the pamphlet. But other aspects do not receive due notice—no mention is made of the prevention of disability and the place of health education in promoting this end. Not much is said about the aged worker whose real disability is frailty, but who might under suitable conditions be able to make a useful contribution.

As is usual with most PEP publications, the Report says little about the future of the service. Rehabilitation is too valuable a conception and now too obvious a duty and responsibility to be allowed to fail—but some improvement is necessary.

W. E. YORKE.

BEYOND THE GERM THEORY. Edited by Iago Galdston. (Health Education Council, 10, Downing Street, New York, 14, for New York Academy of Medicine. 1954. Pp. 182. Price £4.)

The germ theory can no longer be considered as the mainstay of public health. With the virtual conquest of many of the dangerous infectious diseases, more attention can now be paid to non-infective conditions.

This book is written by several authors, who emphasise that ill health has many causes. Their approach is an extension of Claude Bernard, Walter Cannon and Hans Selye's theories of the internal environment and its regulators reacting to different stresses. Deprivation and stress (both physical and emotional) are seen as the main factors that influence health, with nutritional deficiencies playing an important part, particularly in toxaemia of pregnancy and prematurity.

The editor alone underlines the importance of health education and recommends that we teach young people to understand themselves and the world they live in, but few will agree with his definition that "'Public health' cannot and must not be equated to the health of the public".

The authors make a brave attempt to produce a theory to explain the interaction between the internal and external environment, but the use of a difficult nomenclature with words such as psychodynamic, somatopsychic, and gluconeogenesis, and concepts such as the glucocorticoid/minerals corticoid ratio and ratio-determining nutritive balance does not promote easy understanding.

If the presentation had been simpler, the result would probably have been much more effective, if less impressive.

S. LEFF.

THE ABILITIES OF BABIES, by Ruth Griffiths. (University of London Press. 1954. Pp. 229. Illus. Price 20s.)

This is an interesting and particularly readable addition to the wide range of books on psychological testing. Even at this early stage it would seem to merit a place among the honoured few generally accepted test scales. It bids fair to fill a gap.

The book describes the construction, development and use of this "Griffith's" method of testing the intelligence of babies. Dr. Griffiths uses a new term, General Intelligence or G.Q., instead of I.Q., because of the different method of obtaining it. The essence of the method is to assess the baby's abilities in five sub-groups for each of his first twenty-four months. It takes 20–30 minutes to administer the groups of "tests" of the Locomotor, Personal–Social, Hearing–Speech, Hand–Eye and Performance aspects of behaviour. It is claimed that the sub-groups are an aid to the differential diagnosis so important clinically, in relation to future development. No fine degree of predictive value is yet claimed, but a test–re-test correlation of .9 is quoted. The standardisation is on 571 cases (i.e., cases of "first test") and the standard deviation of 12 is comparatively small.

As the scale is based on long observation of young children, together with long experience of testing and treating others, it should prove a valuable instrument, particularly since handicapped as well as normal children were taken in. It will be all the more valuable when the proposed extension from two to seven years has been carried out and when there has been more work on the implications of the scale.

It is to be hoped that the wise emphasis laid on the paramount importance of atmosphere and management of the test situation will be taken to heart by all who read it, whether they use it as a test themselves or not, but more especially if they use any tests at all.

It will be of practical value to clinical psychologists. The wide variety of people concerned with very young children will do well to read it carefully.

J. WILSON WHEELER.

NEW LEAFLETS—
READY SHORTLY

Safe Storage—storing food without a refrigerator.

Refrigerator Storage—how to make the best use of a refrigerator.

Shopping Quiz—20 questions about hygiene in food shops.

Cleaning Baby's Bottle.

The Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

FILMS ON SEX EDUCATION

The following information has been collected and the appraisals carried out by the Scientific Film Association, 164, Shaftesbury Avenue, London, W.C.2, in whom the copyright is vested. Of these 20 films, 10 have appeared in Catalogue of Films on Health Education, 1953 *(University of London Institute of Education and the Scientific Film Association, price 7s. 6d.)*

A BETTER BREED. Great Britain, 1949. (G.-B. Instructional in collaboration with Eugenics Society.) 16 and 35 mm. Sound. 11 mins. GBE F.966 (H).

Content : A simple account of the mechanism by which inherited characteristics are handed on from generation to generation and an introduction to Mendel's Laws of Heredity, both outlined by diagram sequences interwoven with actuality. Examples of the inheritance of one or more characteristics, complete and incomplete dominance, and the recombination of characters resulting in new types are given. There is reference to the practical aspects of this in connection with husbandry, and the film closes with a reminder that these facts hold good in the case of man. (Many of the actuality sequences are taken from ***Heredity in Animals***, G.-B. F.685.)

Appraisal : The film is intended to stimulate interest in eugenics. The subject does not readily lend itself to film treatment and consequently much of the information is conveyed by the commentary, particularly in the first part of the film. The diagram explaining Mendel's Laws is clear and is well illustrated by examples. The film could be used with adult audiences.

HEREDITY IN ANIMALS. Great Britain, 1938. (G.-B. Instructional in collaboration with Eugenics Society.) 16 and 35 mm. Sound. 19 mins. GBE F.685 (H).

Content : A film in two parts, intended for advanced courses :—Reel I. The chromosomes in cell nuclea and their relation to the genes for inherited characters of an animal, the processes of mitosis and meiosis and the formation of gametes are explained by animated diagram and Mendel's first law of segregation and dominance. Reel II. When more than one pair of genes are involved it is shown how they segregate independently. Cross-breeding illustrates the emergence in the second generation of a new type. Results of selective breeding of horses and dogs are also shown. The diagram of genes and gametes is related to actual animals by photographic mixes.

Appraisal : A competently made film, but the commentary in the first reel is overloaded, and much preparation is required before using it ; the second reel is more digestible with well-designed diagrams. Suitable only for teaching advanced students such as sixth forms and first M.B.

HEREDITY IN MAN. Great Britain, 1938. (G.-B. Instructional in collaboration with the Eugenics Society.) 16 and 35 mm. Sound. 14 mins. GBE F. 686.

Content : Designed as a supplement to *Heredity in Animals*, it consists of a lecture by Professor Julian Huxley on the application of Mendelian Genetics to human affairs. Illustrations are given of the inheritance of desirable characteristics, the presentation of pedigree diagrams being interwoven with actuality sequences, of the Phelps family (physique), Godfrey family (musical talent), and the Terry family (artistic ability). One example (of a family of 17 children), is given of the inheritance of mental defect. After showing a diagram illustrating the law of differential fertility, Professor Huxley makes a plea for the application of eugenic knowledge to human affairs.

Appraisal : A stimulating and interesting film which makes its point successfully, using a judicious mixture of diagram, actuality and lecture. There is some special pleading, in that the possible effects of environment are not mentioned ; and the implications of this study are left untouched.

HEREDITY. U.S.A., 1947. (Encyclopædia Britannica : re-commentated in Britain, 1949.) 16 mm. Sound or mute. 11 mins. EB (H).

Content : Photographs of horses and cattle in fields. Crossing of red-coated and white shorthorns. Diagrams of fertilisation and mitosis. Calf is roan. Crossing of two roans. Male carries two kinds of sperms, some with "red" chromosome, some with "white". Same applies to ova. Random crossing produces 25 per cent pure red, 50 per cent roan and 25 per cent black. Black and white guinea pigs crossed : black gene dominates. First filial generation all black. Second filial generation : 75 per cent black, 25 per cent white. Same for rough and smooth hair in guinea pigs. Animated diagrams and photographs of production of black rough and white smooth.

Appraisal : An accurate and well-balanced film with judicious blending of diagrams and photography. The film commentary and presentation are clear and interesting. The film provides a good introduction to the subject of heredity and is also useful for revision. Considering the complexity of the subject, it does well to say so much, so clearly, in so short a time. It is especially suitable for the first year university courses in zoology and advanced science courses in grammar schools.

IN THE BEGINNING. U.S.A., 1946. (For U.S. Department of Agriculture.) 16 mm. Sound. 16 mins. USIS (F).

Content : The film opens with a quotation from Harvey, music, and symbolic images of evolution of life on this planet. It then settles down to a straightforward non-technical exposition of the function of the egg in mammalian reproduction, using the rabbit as the prototype. Diagrams illustrate the organs, and show release of egg, followed by actuality of the process of ovulation, and examination of eggs under the microscope ; diagrams of development of sperm, followed by actuality of sperm entering egg, and a series of cine-micrographic views of the developing egg at 48 hours, 72 hours, and so on. On the 22nd day the enlarged uterus of the rabbit is removed and one of the embryos exhibited. The film concludes with shots of rabbit, dog, cow, horse and their young, and finally a human baby.

Appraisal : There are three remarkable and very valuable sequences—ovulation, fertilisation and development of cells within the egg before embedding. These redeem a film which is not remarkable and is not really suitable for teaching in schools. For general education in youth clubs the superficial style is appropriate, in spite of the sentimental opening.

REPRODUCTION AMONG MAMMALS. U.S.A., 1947. (Encyclopædia Britannica : re-commentated in Britain 1949.) 16 mm. Sound or mute. 10 mins. EB (H).

Content : The pig : exterior of testes, diagram showing position of male organs, passage of sperms. Microphotograph of sperms. Female organs : diagram and dissection, microphotograph showing section of ovaries. Movement of eggs and sperms in female. Animated diagrams of fertilisation. Amphibian : segmentation, blastula, gastrula. Development of pig in uterus : formation of nervous system by neural folds, heart. Chick : amnion, yolk sac, allantois. Placenta of pig enlarged : section to show passage of fluids. Embryo at various ages : pig and human compared. Dissection of pig embryo. Birth of single pig. Photograph of whole litter.

Appraisal : This film is quite up-to-date, and excellent as far as balance, technical content and cinematic quality are concerned. The photomicrographs deserve special mention. The film commentary and presentation are accurate, clear and interesting. It was a pity the amphibia and bird were introduced and in general the film shows too much in too short a time. It is suitable for sixth forms, medical students, veterinary and biology university students, trainee nurses and midwives.

HOW WE BEGIN. Great Britain, 1952. (G.-B. Instructional.) 35 and 16 mm. Sound. 15 mins. GBE F.4737 (H).

Content : Introduction : father and mother putting small boy and girl to bed. External features of reproductive organs. Changes in the body at adolescence. Photomicrography showing structure of cell, the nucleus, various kinds of cells. The cells of the testes ; the formation of the sperm. Ova. Fertilisation. Segmentation. The formation of the

tissues. Cell division in microscopic detail; chromosomes.

Appraisal: This is a good up-to-date film with good whole-part balance, excellent technical content and high cinematic quality. The photomicrography is striking and a pleasing stress is laid on the cell as a unit of life. The commentary and presentation are both clear and interesting. Many necessary explanations have been omitted and the level of exposition changes from the first to the second half. It is recommended for secondary school children after their first year, for youth clubs, teachers in training, welfare clinics and parent–teacher associations.

BIOGRAPHY BEFORE BIRTH. Great Britain, 1952. (G.-B. Instructional.) 35 and 16 mm. Sound. 19 mins. GBE F.4738 (H).

Content: Introduction: family scene. Diagrams of male sex organs showing the testes in the scrotum. Photomicrography of contents of scrotum with semen. Transfer of sperms. Fertilisation. Segmentation. Journey of embryo down oviduct. Diagrams of structure of wall of uterus and feeding of embryo. Provision for oxygen supply. Embryo embedded in wall of uterus, its development and surrounding tissues. Brain and spinal cord formed; eyes, arms; legs; heart. Elimination of waste. Developing bones; with X-ray photograph of ten weeks' old skeleton. Change of position in uterus. Young baby born.

Appraisal: This is an up-to-date film of good whole-part balance, excellent technical content and high level cinematic quality. The photomicrography is outstandingly good, but time factors have been neglected. It can be recommended only for the senior students in secondary schools, or for training college and nursing students and for welfare and ante-natal clinics.

PREPARATION FOR PARENTHOOD. Great Britain, 1952. (G.-B. Instructional.) 35 and 16 mm. Sound. 18 mins. GBE F.4739 (H).

Content: Introduction: scene in mixed swimming bath. Changes at adolescence. Diagram showing control by pituitary and passage of hormones. Formation of sperms. Animated diagrams of escape of sperms, liberation of ovum and passage to uterus. Photomicrography of fertilisation. Diagrams showing structure and function of wall of uterus, development and attachment of embryo. Structure of breast and passage of milk. Baby feeding. Menstruation. Position of twins, both unlike and identical, in uterus. Triplets. Quads. Quins.

Appraisal: This is a very good, up-to-date film with good whole-part balance, acceptable technical content and high-level cinematic quality. The commentary and presentation are clear and interesting. The title is somewhat misleading. It is suitable for children of 13 upwards, youth clubs and for teachers and nurses in training. Menstruation should have been dealt with before fertilisation.

A BROTHER FOR SUSAN. Great Britain, 1951. (Southalls, Birmingham, Ltd.—The Film Producers Guild, Ltd.) 35 and 16 mm. Sound. 13 mins. Sound Services (F). EFVA (H).

Content: Introduction: family scenes of which the story is continued at intervals throughout. Diagrams of female reproductive organs, release and passage of ovum to uterus, dissolution of unfertilised ovum, fertilisation, embryo becomes attached to wall of uterus, development of embryo. Mother visits ante-natal clinic and receives advice. Animated diagrams showing process of labour and birth.

Appraisal: This is a good film and would be a good summary for a series of lessons. The natural environment throughout is very stimulating and so is the emphasis upon the normal life of the expectant mother. The film is up-to-date, well-balanced and with an excellent technical content and high level cinematic quality. Both commentary and presentation are clear and interesting. It is suitable for girls of 11 onwards, for student teachers and nurses, for youth clubs, ante-natal clinics and adult audiences.

HUMAN REPRODUCTION. U.S.A., 1950. (McGraw Hill—Text Films.) 16 mm. Sound. 22 mins. MGM (H).

Content: The introduction shows a small boy with his parents, and the motive is "Parents, brush up your knowledge before John Junior begins to as

questions". Animated diagrams and models show in the female : anatomy of reproductive organs, movement of ova, development of ovum, ovulation, menstrual cycle with days marked. In the male : external and internal organs, enlarged penis with cells, spermatozoa, then microphotographs of latter. Reference to wet dreams and lack of need for masturbation. An animated diagram of fertilisation, cell division in the fertilised egg, the nesting of the egg in the uterine wall, the development of the embryo with the months, physical changes during pregnancy, rhythmic contractions of the uterus resulting in birth.

Appraisal : This is an up-to-date and well-produced film. The commentary and presentation are both clear and interesting. The story is unnecessary and gives the impression that all this information is required by John Junior, whose age is apparently about ten. The outspoken commentary is most welcome. The film would be useful for schools, student nurses, youth clubs and parent-teacher associations.

GROWING GIRLS. Great Britain, 1949. (Southalls, Birmingham, Ltd.—Film Producers Guild.) 35 and 16 mm. Sound. 15 mins. Sound Services (H).

Content : An explanation of menstruation for adolescent girls. The differences between young and adults, animal and human : the meaning of adolescence and its particular significance in girls : ovaries, Fallopian tubes, uterus, and vagina : menstruation : physiological and social aspects of menstruation in the growing girl : use of sanitary towel : precautions to be taken during menstruation.

Appraisal : In many respects an excellent film on a difficult subject. Presentation, clarity of exposition and photography are all of high standard. The treatment is outspoken ; it should cause embarrassment to none. The attitude adopted is on the whole sensible although it tends to lay undue stress with insufficient explanation on special health precautions during menstruation ; at times, too, it inclines towards complacency. The advertising element could with advantage be slightly less intrusive. The diagrams vary in quality : that showing the development of the body at different ages is rather lifeless, but the demonstration of ovaries and uterus is extremely good.

The film is primarily designed for showing under adult supervision to girls of 11–15, and for this purpose it should prove of great value. It can, therefore, be usefully shown to teachers in girls' schools and teacher-training students. It could also be shown with advantage to parents, welfare clinics, mother groups, youth club leaders, pre-nursing courses and first aid candidates.

THE STORY OF MENSTRUATION. U.S.A., 1949. (Walt Disney for Cellucotton Products, Ltd.) 16 mm. Sound. Colour. 12 mins. Foote, Cone & Belding (F).

Content : This cartoon describes the process of menstruation and the need for girls to know something about the process. There is a good deal of simplification, but the colour is attractive. The advertising is not obtrusive. A wall chart is available for teaching.

Appraisal : Photography is usually considered preferable to cartoon because there is more chance of identification. There is too great an emphasis on uncommon reactions and too great a stress on the importance of regular menstruation. Some girls might find the cartoon and the colouring attractive and might then be ready to accept the teaching. The film is probably not suitable for use in schools.

THE ENDOCRINOLOGY OF THE MENSTRUAL CYCLE. Great Britain, 1946. (Unifilm Studios for Wyeth.) 16 mm. Sound. Colour. 15 mins. Wyeth (F).

Content : Position of ovaries. Animated diagrams of menstruation : passage of ovum, corpus luteum, breaking down of endometrium, menstrual flow, hormones in pituitary stimulate other glands. Diagrams of passage of hormones in different colours.

Appraisal : This is an up-to-date film, good on the whole, but with parts not sufficiently clear. The cinematic quality is satisfactory, but the colour rather poor and the timing of the commentary inaccurate and too rapid. The diagrams are poor, the film commentary clear and interesting, but the presentation is not altogether satisfactory. At no point is there any real synthesis of what is going on and too many things are shown to be happening at the same time. This results in the complicated process of the

circulation of the hormones not being clear. It is only suitable for the specialised audiences for which it is intended, namely, medical students, qualified doctors, psychiatrists and nurses and midwives in training.

SIXTEEN TO TWENTY-SIX. Canada, 1945. (National Film Board of Canada for Department of National Health and Welfare.) 16 mm. Sound. Colour. 18 mins. CFL C.307 (H).

Content : Designed primarily for female audiences (in particular high school girls, young industrial and clerical workers), the facts about syphilis and gonorrhœa are presented, covering the course of infection, transmission and treatment. How V.D. affects the health of the nation is supported with pictorial statistics. Animated diagrams show how the germs enter the body, explain the anatomy of female organs and the course of infection. The importance of prompt treatment (that shown is pre-penicillin) is stressed, but no mention is made of the dangers of infecting the marital partner. The film ends with a summary of the main points and an exhortation to girls to live continently and thus avoid infection. (Complementary to *Very Dangerous*, CFL C.308.)

Appraisal : Although technical content is correct as far as it goes, it is unfortunate that no mention is made of neonatal blindness as a sequel to gonorrhœa, nor of the late affection of joints in this disease ; in the account of syphilis only the genital chancre is shown, no mention being made of extra-genital chancres on the finger or lip as a presenting sign of the disease. The attitude of the film, presupposing the infection of the audience, makes it difficult to use it in this country. In its effect the film is not dramatic and the lecture technique, placing too great a reliance on the commentary, is neither moving nor appealing. The colour (of the print viewed) is bad and there are ghost voices on the sound track.

VERY DANGEROUS. Canada, 1945. (National Film Board of Canada for Department of National Health and Welfare.) 16 mm. Sound. Colour. 18 mins. CFL C.308 (H).

Content : Designed for male audiences only, this film deals with the extent, transmission, symptoms and treatment of gonorrhœa and syphilis. In an informal lecture a doctor points out how V.D. threatens the future health of the nation and supports his statement with pictorial statistics. Animated diagrams illustrate male anatomy and indicate the sources and course of infection. The value of blood tests and early proper treatment are emphasised (that shown is pre-penicillin). The effects of the diseases are shown and the doctor emphasises that by avoiding exposure V.D. will not be contracted. Live action photographs show infected cases and the distinguishing signs of the two diseases. (Complementary to *Sixteen to Twenty-six*, CFL C.307.)

Appraisal : The technical content is correct and well presented in simple diagrams and non-technical terms. No mention is made of the danger of infecting the marital partner nor of the effects of congenital syphilis. The figures for the incidence of V.D. are higher than those for this country. Though the lecture technique is not usually appropriate for films, in this particular case it is effective because it is clearly directed at one selected type of audience (a marked contrast to the complementary film *Sixteen to Twenty-six*, CFL C.308). The result is an up-to-date factually correct film with plenty of punch. Unfortunately the colour (of the copy viewed) is bad and there are ghost voices on the sound track.

PEOPLE AT NO. 19. Great Britain, 1949. (Ministry of Health with CCHE—Crown.) 35 and 16 mm. Sound. 16 mins. CFL (UK.1205) (H).

Content : A dramatic short story on the theme of venereal disease.

The happiness of a young married couple is suddenly upset when it is discovered that the wife, who has been to the doctor to confirm that she is expecting a baby, is suffering from syphilis. While it is stressed that the infection can be treated, the problem that their marriage may be in jeopardy is left unsolved though led up to in the film.

Appraisal : The approach is intelligent and "different" and the audience is closely involved in the development of this well-made film.

Its problem is stated clearly and presented well. No details of the treatment are given, nor is the important point of secrecy during treatment mentioned.

This is essentially designed to promote discussion in the audience and is in no sense didactic. Someone with sufficient knowledge to lead the group should introduce the film.

SUBJECT DISCUSSED. Great Britain, 1944. (Gryphon for M.o.H. and C.C.H.E.) 35 and 16 mm. Sound. 15 mins. CFL (UK.583) (H).

Content : A doctor gives an account of venereal disease to a youthful war-time audience. The comparative incidence before and during the war is shown by means of a graph. The doctor explains that it is caused by germs, it results from sexual intercourse, it may be passed on from parents to children and is unlikely to be contacted by other means. The most obvious symptoms of syphilis and gonorrhœa are explained and the necessity for continuous treatment at a clinic is emphasised.

Appraisal : The elementary information given is accurate and up-to-date, but the film is not well planned and there is not enough visual illustration. The commentary and presentation are clear and interesting, but there is a tendency to talk down to the audience. No mention is made of the sterilising effect of gonococcal infection in the female.

SUBJECT FOR DISCUSSION. Great Britain, 1943. (Seven League for Central Council for Health Education.) 35 and 16 mm. Sound. 15 mins. CFL (UK.436) (H).

Content : A child with bandaged eyes is seen in a doctor's waiting-room. The doctor wishes to discuss V.D. in a warden's post as the innocent child is involved as a result of inherited syphilis. Patients come to the doctor too late. First symptoms, results of syphilis and gonorrhœa, blood tests and treatment, form subjects of the lecture.

Appraisal : A war-time setting renders the film less suitable for use to-day. The planning and cinematic quality are satisfactory and the commentary and presentation reach an average standard. It would be most useful for starting a discussion, but is inclined to be too sentimental.

WE WANT A CHILD. Denmark, 1950. (A.S.W. Film Studios, Denmark.) 35 mm. Sound. 90 mins. Renown Pictures (H), 54, Wardour St., W.1.

Content : A story intended for public exhibition, to discourage the practice of abortion. Else marries Leif to whom she has been engaged for some time. No children result from the marriage in spite of the ardent desire of both. Else confesses to her doctor that during the war she had an abortion. The doctor explains the dangers and says there is little hope of her ever having a child.

Her friend Jytte visits the same doctor because she is expecting an illegitimate child and the doctor refuses to perform an abortion. Else arranges to adopt the child, but when the baby arrives Jytte refuses to part with it. Nevertheless, Else conceives a child of her own and medical science prepares the expectant mother The birth of the baby is seen.

Appraisal : This is an excellently produced film with very pleasant photography and background music introduced skilfully. The dialogue is clear and stimulating and the presentation first rate. The story is very human and is adequate, interesting and tastefully presented with a good balance of humour. The overall verdict is "excellent". No mention is made of different prenatal medical practices and moral judgments are omitted, so that premarital intercourse appears to be condoned. It is especially suitable for showing to nursing students, social workers, pregnant mothers, married couples and older members of youth clubs.

Distributors

CFL—Central Film Library, Government Bdgs., Bromyard Ave., London, W.3.
EB—Encyclopædia Britannica, 102, Dean Street, London, W.1.
Foote Cone and Belding, 27, Hill Street, London, W.1.
GBE—Gaumont-British Equipments, Aintree Road, Perivale, Middx.
MGM—Metro Goldwyn Mayer, 58, St. James's Street, London, S.W.1.
Renown Pictures, 54–58, Wardour Street, London, W.1.
Sound Services, 269, Kingston Road, London, S.W.19.
Wyeth—John Wyeth & Brother, Ltd., Clifton House, Euston Road, London, N.W.1.

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